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Editor's Name: Dipanshu Kumar and Ratnesh Mishra (*Content-Team*)
Surya Pratap Singh (FundaMakers Educate Pvt. Ltd.)

Our Centers:
Aliganj: P.D. - 78A. 2nd Floor Near Sector Q, Chauraha, Aliganj, Lucknow. Ph.: 0522-4236636
Gomti Nagar: 100 Metres on service lane of Jeevan Plaza, Near Husariya chauraha Lucknow, Uttar Pradesh
Alambagh: KBC - 13, Vishwakarma Tower, Opp. Pheonix Mall, Behind Fish Gallery, Barabirwa Lucknow.
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CHAPTER 01

Human Geography : Nature and Scope

- Geography is an independent discipline that studies space, earth, its phenomenon, origin of human societies, their culture as well as their interaction with the surrounding environment. Geography is integrative, empirical and practical.
- Geography is associated with dualism. In simple terms, it is divided into two fields, namely, physical geography and human geography.

Human Geography

Human Geography is a branch of geography which studies the relationship between human and natural worlds, spatial distribution of human phenomena and the socio-economic differences between various regions of the world. It is concerned with the cultures, economies, population, settlements, urban and rural phenomenon, etc.

A number of geographers differently defined human geography. Some of these definitions are given below

- "Human geography is the systematic study of relationship between human societies and earth's surface." **Ratzel**
- "Human geography is the study of the changing relationship between the unresting man and the unstable earth." **Ellen C Semple**

Nature of Human Geography

- Human geography studies the inter-relationship between the **physical environment** and **socio-cultural environment** created by human beings through mutual interaction with each other.
- Elements of physical environment are landforms, soils, climate, water, natural vegetation and diverse flora and fauna.

Fields of Human Geography

Human geography is considered as a highly inter-disciplinary nature which develops close linkages with other sister disciplines in social sciences. All the disciplines of human geography help to understand and explain the human elements found on the surface of earth. These also help us to have a better understanding of its subject matter.

Fields of Human Geography are as follows

- Social Geography
- Population Geography
- Settlement Geography
- Urban Geography
- Political Geography
- Economic Geography

Naturalisation of Humans and Humanisation of Nature

- Naturalisation of humans and humanisation of nature can be studied in terms of man environment relationship and interaction. Technology enables human beings to interact with their physical environment.
- The technological tools and techniques that human beings use to produce and create are extremely important. It indicates the level of cultural development of the society. Technology can be developed after developing better understanding of natural laws.
- Technology developed by humans enabled them to overcome the limitations imposed by the natural environment.
- For example, the understanding of friction and heat helped the humans to discover fire and use it to make their lives easier by cooking food and keeping themselves warm.

Approaches of Human Geography

There are three approaches propounded by many geographers which describe the man-environment relationship. These are

Environmental Determinism

- Human beings adapted to the limitations imposed by their natural environment and its various phenomena

in the early stages of their interaction with their natural environment. They have direct interaction with nature and the physical environment, for human beings becomes the **Mother Nature**. This was because the level of technological development was very low and levels of Human Development were also primitive.

- This type of interaction between primitive human societies and strong forces of nature was termed as environmental determinism. The primitive stage, where man listened to the nature, was afraid of its fury (anger), worshipped it, conserved it and lived in complete harmony with it, was considered as the **stage of naturalised human**.

Possibilism

- With the passage of time, the people began to understand their environment and the forces of nature. Gradually, they realised their power to control and develop natural resources into useful things. Now, human beings started to develop better and more efficient technology with social and cultural developments.
- The cultural landscapes were created by human beings and their imprints can be seen easily everywhere. For example, health resorts on highlands, huge urban fields, orchards and pastures in plains and rolling hills, ports on the coasts, oceanic routes on the oceanic surface and satellites in the space. This type of interaction was termed as 'possibilism'.

Neo-determinism or Stop and Go Determinism

- This concept was given by a geographer, **Griffith Taylor**. This concept reflects a middle path between the two ideas of environmental determinism and possibilism. He described this concept on the basis of **traffic signal lights**. For example, red light means 'stop', amber light means 'to get set' and green light means 'go'. In the same way, there is neither a situation of **absolute necessity** (environmental determinism) nor a condition of **absolute freedom** (possiblism). That is why it is known as **Stop and Go Determinism**.
- It means that without harming the natural environment, human beings can modify the nature according to their needs, when nature permits the modifications.
- If humans do not consider the damage to the environment, it would lead to problems.
- Today, damage by humans has resulted in the green house effect, ozone layer depletion, global warming, etc.

Various Schools of Thought

Welfare or Humanistic School of Thought Human geography was mainly concerned with the different aspects of social well-being of the people. These included aspects such as housing, health and education.

Radical School of Thought It employed Marxian theory to explain the basic cause of poverty, deprivation and social inequality. Contemporary social problems were related to the development of capitalism.

Behavioural School of Thought It laid great emphasis on lived experience and also on the perception of space by social categories based on ethnicity, race and religion.

Temporal Evolution of Human Geography

- The essence of Human Geography is that human beings interact with the environment, adapt to it, adjust to it and even modify it.
- Human geography began with the appearance of human beings over the earth's surface. Thus, the concerns of Human Geography have a long historical temporal continuum with the approaches to study Human Geography changing over time. The changing approaches depicts the dynamic nature of the discipline.
- Before the 15th century, interaction between various societies was less as navigational skills were not developed and sea voyages were dangerous. Only a few travellers and explorers used to spread information about their regions. The late 15th century witnessed attempts of explorations in European countries and slowly the myths and mysteries about people started to open up.
- The colonial period provided push to further explorations in order to access resources of the regions and to obtain inventorised information.

Practice Questions

1. "Human Geography is the systematic study of relationship between human societies and earth's surface." This definition was given by
   (a) Ratzel (b) Ellen C Semple
   (c) Vidal de la Blache (d) None of these

2. 'The Radical School of Geography' was influenced by which of the following?
   (a) Gandhian Philosophy (b) Kant's Theory
   (c) Marxian Theory (d) None of the above

3. The subject matter of population geography is taken from which of the following areas?
   (a) Anthropology (b) Economics
   (c) Demography (d) Welfare economics

4. Which of the following periods marked the emergence of spatial organisation approach in Human geography?
   (a) Late 1960s to early 1970s
   (b) Late 1950s to late 1960s
   (c) 1970s
   (d) 1990s

5. "Humans are restricted by the constraints of the natural environment." This idea can be described as
   (a) environmental determinism
   (b) neo-liberalism
   (c) possibilism
   (d) spatial analysis

6. "Nature provides opportunities and human beings use these opportunities. Slowly nature gets humanised." The statement above describes which of the following idea?
   (a) Possibilism
   (b) Environmental Determinism
   (c) Spatial Analysis
   (d) Areal Differentiation

7. Griffith Taylor popularised which of the following ideas/concepts?
   (a) Possibilism (b) Determinism
   (c) Neo-determinism (d) Areal differentiation

8. Eskimos living in Igloos is an example of
   (a) possibilism
   (b) neo-determinism
   (c) environmental determinism
   (d) None of the above

9. The early colonial period was characterised by which of the following approaches to Human Geography?
   (a) Regional analysis
   (b) Areal differentiation
   (c) Exploration and description
   (d) Spatial organisation

10. The approach of spatial organisation emerged in Geography during which period?
    (a) Late 1960s to early 1970s
    (b) Late 1950s to late 1960s
    (c) 1970s
    (d) 1990s

11. 'The Radical School of Geography' was influenced by which of the following?
    (a) Marxian Theory (b) Kant's Theory
    (c) Gandhian Philosophy (d) None of these

12. Which branch of Geography deals with the relation between physical and socio-cultural environment?
    (a) Physical Geography
    (b) Human Geography
    (c) Environmental Geography
    (d) None of the above

13. The subject matter of population geography is taken from ..... .
    (a) anthropology (b) demography
    (c) economics (d) welfare economics

14. Which of the following is the sub-field of Social geography?
    (a) Geography of Leisure
    (b) Geography of Resources
    (c) Geography of Tourism
    (d) Geography of Agriculture

15. Which of the following best signifies the nature of Human Geography?
    (a) It covers all the elements created by men only.
    (b) It covers all the elements created by nature only.
    (c) It covers all the elements created by both men and nature.
    (d) None of the above

16. Which of the following pairs is not correctly matched?
    (a) Social Geography – Sociology
    (b) Political Geography – Psephology
    (c) Population Geography – Resource Economics
    (d) Economic Geography – International Trade

17. Which concept was defined on the basis of traffic signal lights?
    (a) Environmental Determinism
    (b) Possibilism
    (c) Neo - Determinism
    (d) None of the above

18. Which of the following laid emphasis on the perception of space by social categories based on ethnicity, race and religion?
    (a) Humanistic school of thought
    (b) Radical school of thought
    (c) Behavioural school of thought
    (d) None of the above

19. Health resorts on high lands, ports on the coasts, and satellites in the space, are termed as which type of interaction?
(a) Possibilism
(b) Neo-determinism
(c) Environmental Determinism
(d) Naturalisation of Humans

20. Naturalisation of humans and humanisation of nature can be studied in?
(a) Social geography
(b) Economic geography
(c) Human geography
(d) Physical geography

21. What does areal differentiation implies?
(a) Elaborate description of region
(b) Exploration of new areas
(c) Identification of any uniqueness of any region
(d) Use of computers

22. Arrange the following approaches of Human Geography as per their period of origin.
1. Possibilism
2. Neo-determinism
3. Environmental determinism
4. Post-modernism

Codes
(a) 1, 2, 3, 4 (b) 4, 3, 2, 1 (c) 3, 1, 2, 4 (d) 3, 4, 2, 1

23. Arrange the following features of Human Geography as per their period of origin?
1. Emergence of three new schools of thought.
2. Use of sophisticated statistical tools.
3. Universal theories to explain the human conditions were questioned.
4. Elaborate description of all aspects of a region were undertaken.

Codes
(a) 1, 2, 3, 4 (b) 2, 3, 4, 1
(c) 4, 2, 1, 3 (d) 1, 4, 2, 3

24. Match the following.

Column I (Approaches of Human Geography)	Column II (Period of Origin)
A. Areal Differentiation	1. Early colonial period
B. Exploration and description	2. 1990s
C. Post-modernism	3. Late 1950s to late 1960s
D. Spatial organisation	4. 1930s through the inter-war
E. Emergence of Radical school	5. 1970s
F. Regional Analysis	6. Later Colonial Period

Codes

	A	B	C	D	E	F
(a)	4	1	2	3	5	6
(b)	1	2	3	4	5	6
(c)	6	5	4	3	2	1
(d)	3	4	5	2	1	6

25. Match the following

Column I	Column II
A. Regional Analysis	1. Elaborate description of region
B. Exploration and description	2. Exploration of new areas
C. Areal differentiation	3. Identification of uniqueness of any region
D. Spatial origin	4. Use of computers

Codes

	A	B	C	D
(a)	1	2	3	4
(b)	2	3	4	1
(c)	2	4	3	1
(d)	4	3	2	1

ANSWERS

1. (a)	2. (c)	3. (c)	4. (b)	5. (a)	6. (a)	7. (c)	8. (c)	9. (c)	10. (b)
11. (a)	12. (a)	13. (b)	14. (a)	15. (c)	16. (c)	17. (c)	18. (c)	19. (a)	20. (c)
21. (c)	22. (c)	23. (c)	24. (a)	25. (a)					

CHAPTER 02

The World Population : Distribution, Density and Growth

Patterns of Population Distribution in the World

- The term population denotes number of people living in an area on the earth.
- The term population distribution refers to the way people are spaced over the Earth's surface. Broadly, 90% of the world population lives in about 10% of its land area.
- Of this, about 60 per cent population is residing in only 10 countries of the world and of these 10 countries, 6 countries are located in Asia, namely; China, India, Pakistan, Bangladesh, Russian Faderation and Japan.

Factors Influencing the Distribution of Population

Following factors influence the distribution of population

Geographical Factors

(i) Availability of Water (ii) Landforms
(iii) Climate (iv) Soils

Economic Factors

(i) Minerals (ii) Urbanisation
(iii) Industrialisation

Social and Cultural Factors

(i) Cultural Significance
(ii) Social and Political Unrest
(iii) Government Incentives

Density of Population

- The Density of population is the ratio between the numbers of people living in a square kilometer of area is usually measured in persons per sq. km.

$$\text{Density of Population} = \frac{\text{Population}}{\text{Area}}$$

Different regions have different population. For example,

- **Areas having High Density** The densely populated parts of the world have more than 200 persons on every sq. km. These are the North-Eastern part of USA, North-Western part of Europe, South, South-East and East Asia.
- **Ares having Low Density** Areas near the North and South Poles, the hot and the cold deserts and high rainfall zones near the equator have very low density of population. These are the sparsely populated regions of the world with less than 1 person per sq. km.
- **Areas having Medium Density** In the areas of medium density, there are 11 to 50 persons per sq. km. Western China, Southern India in Asia, Norway, Sweden in Europe are some examples.

Population Growth or Change

- The population growth refers to the change in number of inhabitants of a territory during a specific period of time.
- This change may be positive as well as negative. It can be expressed either in terms of absolute numbers or in terms of percentage.

Components (Determinants) of Population Change

There are three components of population change

(i) Birth Rate

There are various measures to calculate fertility/birth rate but **Crude Birth Rate** (CBR) is most widely used.

The Crude Birth Rate (CBR) is expressed as number of live births in a year per thousand of population. It is calculated as

$$\text{CBR} = \frac{\text{Bi}}{\text{P}} \times 1000$$

Here, **CBR** = Crude Birth Rate, Bi = Live births during the year P = Mid year population of the area.

(ii) Death Rate

Crude Death Rate (CDR) is a simple method of measuring mortality of any area. CDR is expressed in terms of number of deaths in a particular year per thousand of population in a particular region. CDR is calculated as

$$CDR = \frac{D}{P} \times 1000$$

Here, CDR = Crude Death Rate,
D = Number of deaths;
P = Estimated mid-year population of that year.

(iii) Migration

- It is the third component of population change. It is the movement of people from one place to another.
- Migration may be **permanent**, **temporary** or **seasonal**. It may take place from rural to rural areas, rural to urban areas, urban to urban areas and urban to rural areas.

Factors of Migration

There are two sets of factors that influence migration

(i) The **Push factors** make the place of origin seems less attractive for reasons like unemployment, poor living conditions, political turmoil, unpleasant climate, natural disaster, epidemics and socio-economic backwardness.

(ii) The **Pull factors** make the place of destination seems more attractive than the place of origin for reasons like better job opportunities and living conditions, peace and stability, security of life and property and pleasant climate.

Trends in Population Growth

- The population of the world is more than 7 billion. Since the emergence of human civilisation, the world population grew at a slow rate, but the present population is the result of only a few hundred years, which had a faster growth rate.
- About 12000 to 8000 years ago when the evolution of agriculture had started, the population size of the world was very small (approximately 8 million). It was below 300 million in the first century AD. The expanding world trade gave impetus to the era of rapid population growth during the sixteenth and seventeenth centuries.
- The world population crossed 550 million at the beginning of the **Industrial Revolution** in 1750. But the period after this i.e. the eighteenth century is known for **population explosion**. Immunisation against communicable diseases and epidemics, improved health and medical facilities, improvement in sanitation helped in rapidly decreasing death rates.

Spatial Pattern of Population Change

- The growth of population is low in developed countries. There is negative correlation between economic development and population growth.
- Although the annual rate of population change in the world (1.4%) seems to be low, it is actually not so.
- When a small annual rate is applied to a very large population, it will lead to a large population change.
- Even if the growth rate continues to decline, the total population grows each year. The infant mortality rate may have increased as has the death rate during childbirth.

Impact of Population Growth

- A slight increase in population is bearable for any growing economy. But if it exceeds the desirable limit, it eventually leads to a number of problems.
- For example, one of the biggest problems is depletion of resources.
- Decline in population is also a concern which indicates that the resources that had sustained a population earlier are now insufficient to sustain the population.

Doubling Time of World Population

- The world population reached the one billion mark in a duration of more than a million years. But it increased from 5 billion to 6 billion only within 12 years.
- Human population increased more than 10 times in past 500 years. In the 20th century, it increased four times.

Theory of Malthus

- Thomas Malthus in his theory (1798) stated that the number of people would increase faster than the supply of food.
- If the population increases any further, it would result in a situation of population crash due to the existing famines, diseases and war.
- For the sustainability of resources, the world will need to control rapid growth of population.

Demographic Transition Theory

The demographic transition theory is used to describe and predict the population and its growth in an area. The theory describes that the population in a region changes from high births and high deaths to low births and low deaths when

- A society which is rural and agrarian changes to an urban and industrial society.
- A society where illiteracy is prevalent, changes to a literate society.

Stages of Demographic Cycle

All these changes occur in different stages which are collectively known as the **demographic cycle**.

Stage I

- This stage occurred about two hundred years ago when all the countries of the world were in this stage.
- This stage is characterised by **high fertility** and **high mortality rates**. There are increasing deaths due to epidemics and variable food supply and people reproduce more to compensate it. There is slow growth of population.

Stage II

- This is the period of time of population explosion. The fertility remains constantly high in the beginning, but it declines with time.
- This period is characterised by reduced mortality rate. This is due to an expansion in medical and health facilities and also improvements in sanitation conditions, etc.

Stage III

- This stage is characterised by a decline in fertility and mortality rates.
- Birth rate is nearly equal to death rate and there is little growth in population.

Population Control Measures

- Family planning schemes can be implemented to control the ever rising population. Family planning is the spacing or preventing the birth of children. It also helps to improve women's health.
- The government should provide access to such services. Other important measures are propaganda, free availability of contraceptives and tax disincentives for large families which make people aware about population control.

Practice Questions

1. In most of the developed countries of the world, population in the higher age group increased due to :
(a) Increase in the life expectancy rate
(b) Decline in birth rate
(c) Decline in death rate
(d) Both (a) and (b)

2. Which of the following is the main characteristic of the stage-I of Demographic Transition Theory?
(a) High fluctuating fertility and high mortality rate
(b) Time of population explosion
(c) Decline in fertility and mortality rate
(d) All of the above

3. Identify the area which comes under low density regions of population.
(a) Zaire Basin of Africa (b) Western China
(c) South-East Asia (d) East Asia

4. The term Crude Birth Rate (CBR) is closest to which of the following?
(a) Fertility
(b) Migration Rate
(c) Mortality Rate
(d) Natural growth Rate

5. Which of these is a major cause of female migration in India?
(a) Education
(b) Marriage
(c) Movement Rate
(d) Searching for employment

6. Which of the following pairs is not correctly matched?
(a) Population Density = Population/Area
(b) Crude Birth Rate – = CBR = $\frac{Bi}{P} \times 1000$
(c) Natural Growth – Births – Deaths + In Migration – Out Migration
(d) Crude Death Rate – = CDR = $\frac{D}{P} \times 1000$

7. Which is the most populous continent?
(a) North America (b) Africa
(c) Europe (d) Asia

8. Kobe-Osaka region is located in which country?
(a) South Korea (b) China
(c) Japan (d) Vietnam

9. Which of the following country does not have areas having high density?
(a) USA (b) Pakistan
(c) Bangladesh (d) Sweden

10. What was the reason behind the population explosion happened in the Eighteenth century?
(a) Industrial revolution
(b) Agricultural Expansion
(c) Colonisation
(d) Vaccine development

11. Who stated that the number of people world increase faster that the supply of food.
(a) Thomas Alter (b) Thomas Malthus
(c) Griffith Taylor (d) Ellen C Semple

12. The ratio between the number of people to the size of land is known as ..... .
(a) population distribution (b) population density
(c) population growth (d) crude birth rate

13. According to Malthus, which of these is a preventive check for population control?
(a) Famine (b) Disease
(c) War (d) Tax Disincentives

14. Which of the following formula correctly depicts natural growth of population?
(a) Births -Deaths
(b) Births-Deaths-In Migration + Out Migration
(c) Births-Deaths + In Migration
(d) Births -Deaths + In Migration -Out Migration

15. Which of the following areas / regions are characterised by very less density of population?
(a) Asia (b) Arabian Desert
(c) South-East Asi (d) North-West Europe

16. Which of the following region/ area in the world has very high density of population?
(a) North-East USA (b) Norway
(c) Amazon Basin (d) Kalahari

17. Which of the following is a push factor for migration?
(a) Job opportunities
(b) Peace and stability
(c) Socio-economic backwardness
(d) Pleasant climate

18. Which of the following can be a consequence of very high population growth?
(a) Depletion of resources (b) Rise in epidemics
(c) Shortage of food supply (d) All of the above

19. It took how many years for the world population to grow from 1 billion to 2 billion?
(a) 12 years (b) 100 years (c) 30 years (d) 22 years

20. Consider the following and tell which of them can be reason/reasons for scarce population in an area?
1. Presence of river valleys
2. Mountains and hills
3. Harsh climate
4. Rich mineral deposits

Codes
(a) 1 and 4 (b) 1, 3 and 4 (c) 2 and 3 (d) 2, 3 and 4

21. Which of the following countries is in the first stage of Demographic transition?
(a) Bangladesh (b) India
(c) Peru (d) Canada

22. Arrange the following group of regions in sequence as per their population density.
1. Asia 2. Africa
3. Europe 4. North America

Codes
(a) 1, 2, 3, 4 (b) 4, 3, 2, 1
(c) 2, 3, 4, 1 (d) 2, 4, 1, 3

23. Arrange the following stages of Demographic transition in chronological order.
1. High fertility, High mortality
2. Birth rate equal to death rate
3. Population explosion

Codes
(a) 1, 2, 3 (b) 1, 3, 2
(c) 3, 2, 1 (d) 2, 3, 1

24. Match the following.

Column I (Regions)		Column II (World's share in Population Density)
A. Asia	1.	59.5%
B. Africa	2.	16.9%
C. Europe	3.	9.7%
D. Latin America and the Caribbean	4.	8.5%
E. Northern America	5.	4.8%
F. Oceania	6.	0.5%

Codes

	A	B	C	D	E	F
(a)	1	2	3	4	5	6
(b)	6	5	4	3	2	1
(c)	3	4	5	2	1	6
(d)	4	3	6	5	2	1

25. Match the following.

Column I (Regions)		Column II (Area-wise Rank in the world)
A. Asia	1.	2nd
B. Africa	2.	3rd
C. Europe	3.	1st
D. North America	4.	5th

Codes

	A	B	C	D
(a)	1	2	3	4
(b)	4	3	2	1
(c)	3	1	2	4
(d)	4	1	3	2

ANSWERS

1. (d)	2. (a)	3. (a)	4. (a)	5. (b)	6. (c)	7. (d)	8. (c)	9. (d)	10. (a)
11. (a)	12. (b)	13. (d)	14. (d)	15. (b)	16. (a)	17. (c)	18. (d)	19. (b)	20. (c)
21. (a)	22. (a)	23. (b)	24. (a)	25. (c)					

CHAPTER 03

Population Composition

Sex Composition

The number of men and women in a country is one of an important characteristics to study the demography of the country.

Sex-Ratio

The ratio between the number of women and men in the population is called the sex-ratio. There are different criterias to calculate sex-ratio in the world. These are discussed below

- In some countries it is calculated by using the following formula

$$\text{Sex-ratio} = \frac{\text{Male Population}}{\text{Female Population}} \times 1000$$

It is expressed as the number of males per thousand females.

- The criteria to calculate sex-ratio is different in India. Here, the sex-ratio is calculated by using the following formula:

$$\text{Sex-ratio} = \frac{\text{Female Population}}{\text{Male Population}} \times 1000$$

It is expressed as the number of females per thousand males.

Gender Discrimination

- The status of women of a country can be shown significantly with the help of sex-ratio data.
- There are a number of regions where gender discrimination is prevalent since early times.
- In these areas a number of malpractices are prevalent against females like female **foeticide, female infanticide** and **domestic violence**, etc.
- The main reason of these malpractices could be the lower socio-economic status of women in these regions.

World Pattern of Sex-Ratio

- The world population, on an average, demonstrates a sex-ratio of 102 males per 100 females. It is lower in many Asian countries.
- The developed regions of the world do not show much variations in the world pattern of sex-ratio. According to the United Nations' Report, there are 139 countries which have a favourable sex-ratio for females.
- Whereas the remaining 72 countries listed by UN exhibit an unfavourable condition of women in this regard.

Areas of High Sex-Ratio

- The highest sex-ratio in the world is found in the European country **Latvia** which has only 85 males per 100 females. Besides, greater part of Europe (including Russia) also has a high sex-ratio.
- European countries have low male population due to which they became a minority in these countries. This low male population is due to better status of women, and an excessively male-dominated out-migration to different parts of the world in the past.

Areas of Lower Sex-Ratio

- The lowest sex-ratio in the world is found in Qatar, in West Asia, which has 311 males per 100 females.
- Besides, Asian countries like China, India, Saudi Arabia, Pakistan, Afghanistan also show a lower sex-ratio due to the lower socio-economic status of women in these countries.

Age Structure

- The age structure of a population is the distribution of people among various age groups. It is considered as an important indicator of population composition.
- It illustrates trends in population such as size of **working population, young population** and **ageing population** of a country. The age structure is comprised of the following age groups

Young Population

- This age group comprises of children below 15 years.

- If this age group is in a high proportion, it would mean that the region has a **high birth rate** and the population is youthful. This age group is also known as **pre-reproductive group**.

Working Population

- This age group comprises of people from 15-59 years. A high proportion of this age group is a sign of economic development of a region.
- This age group is also called as **productive group**, as they are engaged in different economic activities.

Ageing Population

- This age group comprises of people above 60 years. This age group comes under dependent population which are dependent on working population for their living.
- They require more expenditure on healthcare facilities. This age group is also known as **post-reproductive group**.

Age-Sex Pyramid

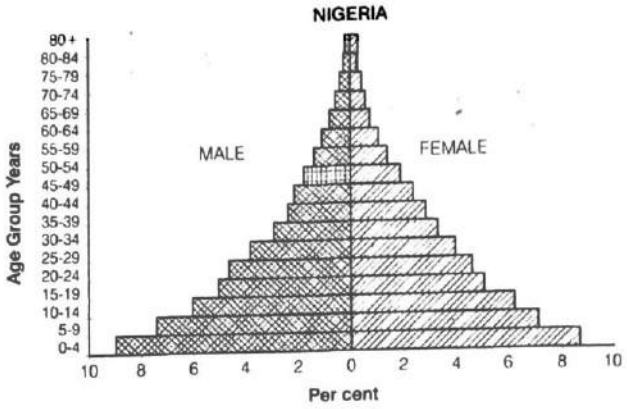
- The age-sex structure is an important component of a population that defines the number of females and males in different age-groups. This structure can be easily expressed with the help of a **population pyramid**.
- A population pyramid is a graphical illustration that shows the distribution of various age groups in the population of a country/region. This tool can be used to visualise sex and age composition of a particular population.
- The characteristics of population are depicted by the shape of the population pyramid. The population size is depicted on the **x-axis** (horizontal) and age-groups on **y-axis** (vertical).
- Males of each age group are shown on the left side and females on the right side of the pyramid. They may be measured by raw number or as a percentage of the total population.

Types of Age-Sex Pyramid

Different types of population pyramid are given below

Expanding Population

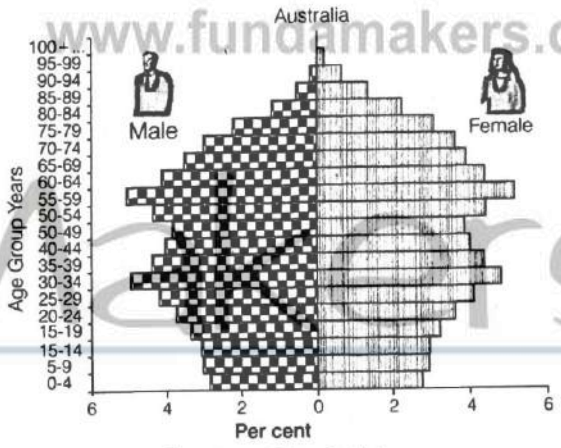
- The pyramid given below is of Nigeria which shows a **perfect triangular shape**. It is broad at base which shows a larger population in lower age-groups.
- This pyramid is characterised by **high birth rates** and **low life-expectancy**. The population grows at a fast rate. This type of Pyramid usually represents less developed countries. Bangladesh and Mexico have the similar age-sex pyramid.



Expanding Population

Constant Population

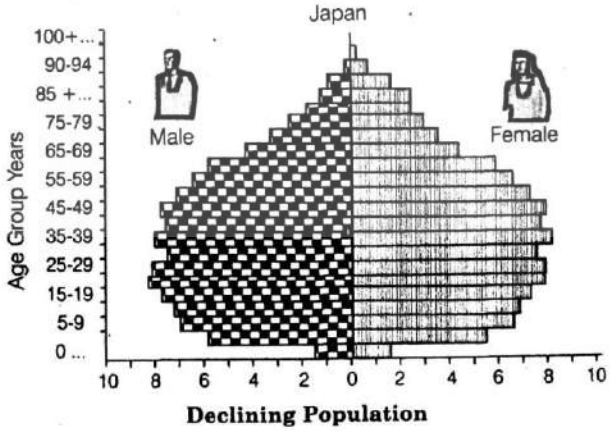
- The age-sex pyramid given below is of Australia which shows a **bell shape** and is tapered towards the top.
- This pyramid is characterised by **equal birth** and **death rates,** which shows a near constant population.



Constant Population

Declining Population

- The given age-sex pyramid is of Japan which shows a **narrow base** and a **tapered top**. This shows low birth and death rates.
- This type of pyramid usually characterises developed countries where population growth is zero or negative.



Declining Population

Population Ageing

Population ageing is a new phenomenon of twentieth century. It is a process by which the share of older populations becomes proportionally larger. It is particularly characteristic of the developed countries where population in higher age groups has increased due to increased life expectancy and the proportion of children has declined with reduction in Birth Rates.

Rural-Urban Composition

- The division of population into rural and urban is based on the residence. Rural and urban areas have separate identities based on different characteristics.
- The age-sex occupational structure, density of population and level of development vary between rural and urban areas.
- The criteria for differentiating rural and urban population varies from country to country. The rural areas are generally those places where people are engaged in **primary activities**. For example mining, agriculture, fishing, hunting, gathering, animal rearing, etc.
- Whereas, urban areas are those where people are engaged in **non-primary activities** or secondary, tertiary, quaternary and quinary activities.

Rural-Urban Composition in Developed Countries

When we consider the developed or Western countries e.g. Finland, USA, Canada, the males are more than females in rural areas. On the other hand, females are more than males in urban areas.

Reasons for excess of female population in urban areas are

- Inflow of females from rural to urban areas in search of job opportunities.
- Highly mechanised farming in rural areas which leads to male migration from urban to rural areas.

Rural-Urban Composition in Developing Countries

In case of developing countries, e.g. Nepal, Pakistan, India and other African countries males are more than females in urban areas. On the other hand, females are more than males in rural areas. The main reasons for such situation are:

- Due to excessive male migration, the sex-ratio in Asian urban areas always remains male dominated.
- In developing countries like India, female participation in farming activity in rural area is fairly high.
- Shortage of housing, high cost of living, lack of job opportunities and lack of security in cities collectively discourage women to migrate from rural to urban areas.

Practice Questions

1. The sex ratio in a country can be expressed as which of the following?
   (a) Number of males per thousand females
   (b) Number of males per lakh females
   (c) Number of females per thousand males
   (d) Both (a) and (c)

2. Which of the following is not a reason of unfavourable sex ratio against women?
   (a) Gender discrimination (b) Domestic violence
   (c) Female infanticide (d) Marriage

3. Highest sex-ratio in the world is found in a country of which of the following continent?
   (a) Africa (b) Asia (c) Europe (d) Oceania

4. The productive group of population covers people of which of the following age group?
   (a) 0-15 years (b) 16-64 years
   (c) 15-59 years (d) 60-65 years

5. A country having pyramid of population that has a wide base and sharply tapered top is characterised by which of the following?
   (a) Low birth rate, High life expectancy
   (b) High birth rate, Low life expectancy
   (c) High Death rate, High Birth rate
   (d) None of the above

6. Which of the following is not a primary activity?
   (a) Agriculture (b) Mining
   (c) Fishing (d) Manufacturing

7. A strong socio-economic development of a country is the result of a high proportion of literate population. This leads to which of the following positive externalities?
   (a) Better standard of living of people
   (b) Higher social status of women
   (c) Better educational facilities
   (d) All of the above

8. The lowest sex ratio in the world is in which country?
   (a) Qatar (b) Saudi Arabia
   (c) Nepal (d) China

9. Age-sex pyramid of which of the following countries is a perfect triangle?
   (a) Australia (b) Nigeria
   (c) Japan (d) USA

10. Identify the country with the highest sex-ratio in the world.
    (a) USA (b) Latvia
    (c) Japan (d) France

11. The dependent population of a country covers which of these age groups
(a) 0-15 years (b) 15-59 years
(c) 59 years and above (d) Both (a) and (c)

12. Which of the following is true about age sex pyramid?
1. It depicts number of males and females in different age groups.
2. It is of various shapes, depending upon the population of a country.
3. Age-sex pyramid of Bangladesh and Mexico are similar.

Codes
(a) 1 and 2 (b) 2 and 3
(c) 1, 2 and 3 (d) 1 and 3

13. Consider the following statements and choose the ones which are correct.
1. The world population on an average shows a sex ratio of 102 males per 100 females.
2. According to UN, there are only 72 countries that have a favourable sex ratio for females.
3. The sex ratio is lowest in Qatar.

Codes
(a) 1 and 2 (b) 1 and 3
(c) 2 and 3 (d) 1, 2 and 3

14. Match the following and choose the correct option.

	Population		Pyramid shape
A.	Constant population	1.	Perfect triangle shape
B.	Declining population	2.	Bell shape
C.	Expanding population	3.	Narrow Base & Tapered Top Shape

Codes

	A	B	C		A	B	C
(a)	1	3	2	(b)	2	3	1
(c)	1	2	3	(d)	2	1	3

15. What is the average sex-ratio of the world population?
(a) 102 males per 100 females
(b) 101 males per 100 females
(c) 100 males per 100 females
(d) 100 males per 101 females

16. What does the high proportion of young population implies?
(a) Low birth rate (b) High birth rate
(c) Low death rate (d) High death rate

17. Which group is known as productive group?
(a) Young population
(b) Working population
(c) Ageing population
(d) None of the above

18. Which group is also known as post-reproductive group?
(a) Young population (b) Working population
(c) Ageing population (d) Both (b) and (c)

19. Which type of population pyramid shows a perfect triangular shape?
(a) Expanding population
(b) Constant population
(c) Declining population
(d) None of the above

20. Which type of population pyramid shows a bell shape?
(a) Expanding population (b) Constant population
(c) Declining population (d) None of the above

21. Which type of population pyramid shows a narrow base and a tapered top?
(a) Expanding population (b) Constant population
(c) Declining population (d) None of the above

22. Mining is a
(a) Primary activity
(b) Secondary activity
(c) Tertiary activity
(d) Quaternary activity

23. Age-sex pyramid of Bangladesh and Mexico are of which type?
(a) Expanding population
(b) Declining population
(c) Constant population
(d) None of the above

24. Which type of population pyramid usually characterises developed countries where population growth is zero?
(a) Constant population
(b) Declining population
(c) Expanding population
(d) None of the above

ANSWERS

1. (d)	2. (d)	3. (c)	4. (c)	5. (b)	6. (d)	7. (d)	8. (a)	9. (b)	10. (b)
11. (d)	12. (c)	13. (b)	14. (b)	15. (a)	16. (b)	17. (b)	18. (c)	19. (a)	20. (b)
21. (c)	22. (a)	23. (a)	24. (b)						

CHAPTER 04

Human Development

Growth and Development

- Growth and development both refer to changes over a period of time. The difference is that growth is quantitative and value neutral. It may have a positive or a negative sign.
- Development means a qualitative change which occurs when positive growth takes place. Yet, positive growth does not always lead to development.

Concept of Human Development

- The concept of human development was introduced by **Dr Mahbub-ul-Haq**. Dr Haq has described human development as development that enlarges people's choices, improves their lives and creates conditions where people can live meaningful lives.
- The idea of human development came from the aspects of development like the **quality of life** people enjoy in a country, the opportunities they have and **freedoms** they enjoy. The basic aim of development is creating conditions where people can live meaningful lives.
- Therefore, access to resources, health and education are the key areas in human development.
- **Prof Amartya Sen** contribution in the field of Human Development is also important.
- Since 1990, the concept of human development has been used by United Nations Development Programme to publish the Human Development Report (HDR) annually.
- According to Prof. Amartya Sen, the main objective of development is to increase freedom (or decreasing unfreedom) because increasing freedom is one of the most effective ways of bringing about development.

Four Pillars of Human Development

The idea of human development is supported by the concepts of **equity, sustainability, productivity** and **empowerment.**

(i) **Equity** refers to making equal access to opportunities available to everybody irrespective of their gender, race, income and in the Indian case, caste.

(ii) **Sustainability** means continuity in the availability of opportunities. To have sustainable human development, each generation must have the same opportunities.

(iii) **Productivity** here means human labour productivity or productivity in terms of human work. It means providing them with conditions which lead to better work efficiency.

(iv) **Empowerment** means to have the power to make choices. Such power comes from increasing freedom and capability. Good governance and people-oriented policies are required to empower people.

Approaches to Human Development

There are many ways of looking at the problem of human development. Some of the important approaches are

- **Income Approach** Under this approach human development is linked to income. According to this idea, the level of income decides the level of freedom an individual enjoys.
- **Welfare Approach** This approach puts human beings at a central position where he/she is the beneficiary or target of all developmental activities.
- This approach emphasises that it is the responsibility of the government to maximise its expenditure on welfare of people like on education, health and social amenities.
- **Basic/Minimum Needs Approach** This approach was proposed by **International Labour Organisation** (ILO). This approach considered six basic needs as important, these include **health, education, food, water supply, sanitation** and **housing**. This emphasises more on the fulfilment of basic needs of certain sections and the question of human choices is ignored.
- **Capabilities Approach** Prof Amartya Sen is associated with this approach. He advocated building human capabilities in the areas of health, education and access to resources in order to increase the level of human development.

Measuring Human Development Selected Indicators

Human Development Index (HDI)

In 1990, Dr Mahbub-ul-Haq created the Human Development Index (HDI). HDI is a measure for assessing the progress of a country in three basic dimensions of human development i.e. health, education and access to resources. These rankings are based on a score between 0 to 1.

(i) **Health** The life expectancy at birth is chosen as an indicator to assess health. It is chosen as an indicator because higher life expectancy provides the people a greater chance of living longer and healthier lives.

(ii) **Education** The two indicators i.e. the **adult literacy rate** and **the gross enrolment ratio** are chosen to represent access to knowledge.

(iii) **Access to Resources** Purchasing power (in US dollars) of people in a country represents access to resources of its population.

HDI Weightage

- Each dimension is given a weightage of 1/3. The Human Development Index is a sum total of the weights assigned to all these dimensions.
- The level of human development would be high if score is more close to one.
- For example, if a country has a score of 0.983, it would come in very high human development category.
- Whereas, if a country has a score of 0.268, it would be in very low human development category.

Human Poverty Index (HPI)

- Human Poverty Index is another measure which is associated with Human Development Index.
- It measures the **shortfall in human development**. It is considered a non-income measure.
- HPI takes into account the following indicators to show the shortfall in human development of a region.
  - Probability of not surviving till the age of 40.
  - Adult illiteracy rate.
  - Number of people who do not have access to clean water.
  - Number of small children who are underweight.
- Unlike Human Development Index, HPI is more revealing of the Human Development. But together, both the measures provide a clear picture of the human development of any country.

Gross National Happiness (GNH)

Gross National Happiness is a holistic and sustainable approach to development. Bhutan is the only country in the world to officially proclaim the Gross National Happiness (GNH) as the measure of the country's progress.

International Comparisons of Human Development

International comparisons of human development give interesting results.

These can be analysed as

- There is no direct relation of human development with size of the territory and Per Capita Income (PCI).
- Many a times, it is seen that smaller countries posses higher ranks in human development report as compared to larger countries.
- Likewise, relatively poorer nations secured higher rank than their richer neighbours in terms of human development.

Classification of Countries on the Basis of Human Development Scores

Countries have been classified into four groups on the basis of the human development scores earned by them.

(i) **Countries with Very High HDI** These countries have a score of over 0.800.

(ii) **Countries with High HDI** These countries have secured a score between 0.701 upto 0.799. This group includes 53 countries as per HDR, 2018. These countries are characterised by a lot of investment in social sector like in education, better health care facilities.

(iii) **Countries with Medium HDI** These countries have a score between 0.550 upto 0.700.

(iv) **Countries with Low HDI** These countries have a score below 0.549.

Myths and Facts about Human Development

- The international comparisons of human development shows us that people often tend to blame low levels of human development on culture religion or a particular community.
- Such beliefs are misleading and in reality, there are other factors which keeps a country in the low HDI List.
- These are
  - Pattern of government expenditure on the social sector.
  - Political instability in the country.
  - Amount of freedom people have.

Countries with high level of human development have the following characteristics which place these countries into the high HDI list

- More investment in the social sectors.
- Freedom from political turmoil and instability.
- Distribution of the resources is equitable.

On the other hand, places with lower levels of Human development have the following characteristics.

- More spending on defence as compared to social sectors.
- Political instability and turmoil.

Inability to initiate accelerated economic development.

Practice Questions

1. Which of the following is not a pillar of human development?
   (a) Equity (b) Equality
   (c) Sustainability (d) Empowerment
2. Which of the following is the earliest approach to human development?
   (a) Welfare approach (b) Income approach
   (c) Basic needs approach (d) Capabilities approach
3. What is the rank of India in the Human Development Report, 2018?
   (a) 135 (b) 132 (c) 130 (d) 129
4. According to Dr Mahbub-ul-Haq which of the following means Human development?
   (a) Development which increase people's incomes
   (b) Development which enlarges people's choices
   (c) Development which makes people strong
   (d) Development which makes people smart
5. The most important aspects of human lives are
   (a) Access to health (b) Access to education
   (c) Access to Resources (d) All of these
6. Which of the following is sustainability in context of Human development?
   (a) Giving equal opportunities to all generations
   (b) Using natural resources widely
   (c) Continuity in the availability of resources
   (d) All of the above
7. In the Human Development Report, 2018, how many countries are there in the very high category of Human Development?
   (a) 65 (b) 59 (c) 53 (d) 35
8. Countries having Lower Human development can be characterised by which of the following
   (a) Political Turmoil
   (b) More spending on defence
   (c) Social unrest
   (d) All of the above
9. The idea of Human development gives ..... a central position in the process of development.
   (a) income (b) health
   (c) people (d) education
10. The ..... is chosen as an indicator to assess health in Human development.
    (a) purchasing power (b) knowledge
    (c) vaccination level (d) life expectancy
11. Which of the following is not one of the four pillars of Human Development?
    (a) Equity (b) Sustainability
    (c) Accessibility (d) Productivity
12. Development of a few regions by individuals brought about in a short span of time leads to
    (a) Malnutrition (b) Poverty
    (c) Ecological degradation (d) All of these
13. Which of the following steps can be taken to improve the level of human development?
    (a) Increasing literacy levels
    (b) Providing health facilities
    (c) Having more enrolment ratio
    (d) All of the above
14. Which of the following indicators is not used to measure Human Development in HDI?
    (a) Purchasing Power (b) Gross Enrolment
    (c) Vaccination (d) Life Expectancy
15. Which pillar of Human Development stresses on opportunities for future generations?
    (a) Equity (b) Empowerment
    (c) Sustainability (d) Productivity
16. What is the rank of India in the Human Development Report 2020?
    (a) 125 (b) 135 (c) 129 (d) 131
17. Which of the following pairs is not correctly matched?
    (a) Equity- It refers to making equal access to opportunities available to everybody.
    (b) Sustainability – It means continuity in the availability of opportunities.
    (c) Accessibility- It means human labour productivity or productivity in terms of human work.
    (d) Empowerment – It means to have the power to make choices.
18. Who publishes the Human Development Report (HDR) annually?
    (a) United Nations Development Programme [UNDP]
    (b) Amnesty International
    (c) World Bank
    (d) International Monetary Fund
19. Which of the following is not a pillar of Human Development?
    (a) Equity (b) Productivity
    (c) Equality (d) Sustainability
20. 'Minimum Needs Approach' was proposed by which organisation?
    (a) UNDP
    (b) World Bank
    (c) UNICEF
    (d) International Labour Organisation [ILO]
21. Which country officially uses "Gross Happiness Index" [GHI] as the measure of the country's progress?
    (a) Nepal (b) Tibet (c) Bhutan (d) Singapore
22. Which of the following are the characteristics of the countries with high level of human development?
    (a) More investment in the social sectors
    (b) Freedom from Political turmoil and instability
    (c) Distribution of resources is equitable
    (d) a, b and c are correct

23. Arrange the following according to their rank in HDR 2020 (Highest to lowest).

1. Norway
2. Australia
3. Germany
4. Iceland

Codes

(a) 1, 4, 3, 2
(b) 3, 4, 2, 1
(c) 3, 2, 1, 4
(d) 2, 4, 1, 3

24. Match the following.

	Column I (Countries)		Column II (Rank in HDI 2020)
A.	Norway	1.	1st
B.	Ireland	2.	2nd
C.	Switzerland	3.	3rd
D.	Hongkong, (China) SAR	4.	4th
E.	Iceland	5.	5th
F.	Germany	6.	6th

Codes

	A	B	C	D	E	F
(a)	1	2	3	4	5	6
(c)	3	4	5	2	1	6

	A	B	C	D	E	F
(b)	6	5	4	3	2	1
(d)	2	3	6	5	4	1

25. Match the following.

	Column I (Levels in HDI)		Column II (No. of countries in HDI 2020)
A.	Very High Level	1.	66
B.	High Level	2.	53
C.	Medium	3.	37
D.	Low Level	4.	33

Codes

	A	B	C	D
(a)	1	2	3	4
(c)	3	4	2	1

	A	B	C	D
(b)	4	3	2	1
(d)	4	1	3	2

ANSWERS

1. (b)	2. (b)	3. (c)	4. (b)	5. (d)	6. (d)	7. (b)	8. (d)	9. (c)	10. (d)
11. (c)	12. (d)	13. (d)	14. (c)	15. (c)	16. (d)	17. (c)	18. (a)	19. (c)	20. (d)
21. (c)	22. (d)	23. (a)	24. (a)	25. (a)					

CHAPTER 05

Primary Activities

Human activities which generate income are known as economic activities. Economic activities are broadly grouped into primary, secondary, tertiary and quaternary activities.

Primary Activities : Concept and Changing Trends

- Primary activities are directly dependent on environment and involve the utilisation of Earth's resources such as land, water, vegetation, building materials and minerals. e.g. hunting and gathering, pastoral activities, fishing, forestry, agriculture and mining and quarrying, etc.
- People engaged in primary activities are called **red-collar workers** due to the outdoor nature of their work.

Types of Primary Activities

Hunting and Gathering

- The earliest human beings depended on their immediate environment for their sustenance. They subsisted on the following
  (i) Animals which they hunted;
  (ii) The edible plants which they gathered from forests in the vicinity.
- People located in very cold and extremely hot climates survived on hunting. People in the coastal areas still catch fish.
- Gathering is practised in regions with harsh climatic conditions by primitive societies, who depend upon plants and animals to satisfy their needs for food, shelter and clothing. The yield per person is very low and little or no surplus is produced.

People living in high latitude zones and low latitude zones practised gathering.

Pastoralism

Depending on the geographical factors and technological development, animal rearing today is practised either at the subsistence or at the commercial level.

Nomadic Herding

- Nomadic herding or **pastoral nomadism** is a primitive subsistence activity, in which the herders rely on animals for food, clothing, shelter, tools and transport. They move from one place to another along with their livestock, in search of pastures and water.
- The process of migration from plain areas to pastures on mountains during summers and again from mountain pastures to plain areas during winters is known as **transhumance**.
- The number of pastoral nomads has been decreasing and the areas operated by them shrinking because of imposition of political boundaries and new settlement plans by different countries.

Commercial Livestock Rearing

- Commercial livestock rearing is more organised and capital intensive. Associated with Western cultures, it is practised on **permanent ranches**. It covers large areas.
- This is a specialised activity in which only one type of animal is reared. Products such as meat, wool, hides and skin are processed and packed scientifically and exported to different world markets.

Agriculture

Agriculture is practised under multiple combinations of physical and socio-economic conditions, which gives rise to different types of agricultural systems.

Subsistence Agriculture

Subsistence agriculture is one in which the farming areas consume all or nearly so of the products locally grown. It can be grouped into primitive and intensive.

Primitive Subsistence Agriculture

- Primitive subsistence agriculture or shifting cultivation is widely practised by many tribes in the tropics, especially in Africa, South and Central America and South-East Asia.

- The vegetation is usually cleared by fire and the ashes add to the fertility of the soil. Shifting cultivation is thus, also called **slash and burn agriculture**.

Intensive Subsistence Agriculture

This type of agriculture is largely found in densely populated regions of monsoon Asia. Basically, there are two types of intensive subsistence agriculture

(i) Intensive subsistence agriculture dominated by wet paddy cultivation Land holdings are very small due to the high density of population. Farmers work with the help of family labour leading to intensive use of land.

(ii) Intensive subsistence agriculture dominated by crops other than paddy Wheat, soybean, barley and sorghum are grown in Northern China, Manchuria, North Korea and North Japan.

Modern Agriculture

People engaged in agricultural and allied activities some examples from selected countries.

Plantation Agriculture

- This type of agricultural system was introduced by the Europeans. It was started in those colonies which were situated in the tropical areas. It is mainly a profit-oriented large scale production system.
- Some of the important plantation crops are tea, coffee, cocoa, rubber, cotton, oil palm, sugarcane, bananas and pineapples.

Extensive Commercial Grain Cultivation

- Commercial grain cultivation is practised in the interior parts of semi-arid lands of the mid-latitudes. Wheat is the principal crop, though other crops like corn, barley, oats and rye are also grown.
- This type of agriculture is best developed in Eurasian **Steppes**, the Canadian and American **Prairies**, the **Pampas** of Argentina, the **Velds** of South Africa, the Australian **Downs** and the **Canterbury Plains** of New Zealand.

Mixed Farming

- This form of agriculture is found in the highly developed parts of the world, e.g. **North-Western Europe, North Eastern America**, parts of Eurasia and the temperate latitudes of Southern continents.
- **Crop rotation** and **intercropping** play an important role in maintaining soil fertility.
- Equal emphasis is laid on crop cultivation and animal husbandry. Animals like cattle, sheep, pigs and poultry provide the main income along with crops.

Dairy Farming

- Dairy farming is highly capital intensive. Animal sheds, storage facilities for fodder, feeding and milching machines add to the cost of dairy farming. Special emphasis is laid on **cattle breeding, health care** and **veterinary services**.
- There are three main regions of commercial dairy farming. The largest is North-Western Europe, the second is Canada and the third belt includes South Eastern Australia, New Zealand and Tasmania.

Mediterranean Agriculture

- Mediterranean agriculture is highly specialised commercial agriculture. It is practised in the countries on either side of the Mediterranean sea in Europe and in North Africa, Southern California, Central Chile, South-Western parts of South Africa and South and South-Western parts of Australia. This region is an important supplier of citrus fruits.
- **Viticulture** or **grape cultivation** is a speciality of the Mediterranean region. This region also produces olives and figs.

Market Gardening and Horticulture

- Market gardening and horticulture specialise in the cultivation of high value crops such as vegetables, fruits and flowers, solely for the urban markets.
- It is both labour and capital intensive and lays emphasis on the use of irrigation, HYV seeds, fertilisers, insecticides, greenhouses and artificial heating in colder regions. North-West Europe, North-Eastern United States of America and the Mediterranean regions have well developed farms.

Truck Farming

- The regions where farmers specialise in vegetables only, the farming is known as **truck farming.** The name truck farming is given due to the fact-that the distance of the farm where crops are grown from the market is governed by the distance that a transportation truck can cover overnight.

Factory Farming

- A modern development in the industrial regions of Western Europe and North America is factory farming. In this livestock, particularly **poultry** and cattle rearing, is done in a specialised manner.
- The main feature of poultry farming and cattle rearing is **breed selection** and **scientific breeding**.

Co-operative Farming

- A group of farmers form a co-operative society by pooling in their resources voluntarily for more efficient and profitable farming.

- It help farmers, to procure all important inputs of farming, sell the products at the most favourable terms and help in processing of quality products at cheaper rates.

Collective Farming

- It is based on social ownership by the means of production and collective labour.
- The farmers used to pool in all their resources like land, livestock and labour. However, they were allowed to retain very small plots to grow crops in order to meet their daily requirements.
- Yearly targets were set by the government and the produce was also sold to the state at fixed prices.

Mining

- Mining is a form of primary activity which involves extraction of commercially valuable minerals deep under the earth's surface.
- Mining depends upon economic and physical factors.

Factors Affecting Mining Activity

The profitability of mining operations depends on two main factors

(i) **Physical factors** include the size, grade and the mode of occurrence of the deposits.

(ii) **Economic factors** such as the demand for the mineral, technology available and used, capital to develop infrastructure and the labour and transport costs.

Methods of Mining

- Depending on the mode of occurrence and the nature of the ore, mining is of two types surface and underground mining.
  - The **surface mining** also known as **open-cast mining** is the easiest and the cheapest way of mining minerals that occur close to the surface.
  - When the ore lies deep below the surface, **underground mining method** (shaft mining method) has to be used.

Practice Questions

1. Hunting and gathering is practised mainly in which of the following regions?
(a) Amazon Basin (b) North USA
(c) Tropical Sahara (d) Andes

2. In the Arctic and Sub-Arctic areas, which of the following animal is reared by the Nomads?
(a) Yak (b) Reindeer
(c) Llamas (d) Horde

3. Seasonal migration of herders from plains to mountains and vice-versa is known as
(a) Nomadic herding (b) Pastoral grazing
(c) Transhumance (d) Livestock rearing

4. Reindeer are reared by which of the following communities in Northern Alaska?
(a) Eskimos (b) Pygmies
(c) Zwantes (d) Koyukan

5. Plantation agriculture was developed by
(a) Europeans (b) Asians
(c) Africans (d) Americans

6. Which of the following developed sugarcane plantations in Indonesia?
(a) The French (b) The English
(c) The Dutch (d) The Spanish

7. Viticulture is speciality of which of the following type of agriculture?
(a) Dairy farming
(b) Mediterranean agriculture
(c) Extensive commercial grain agriculture
(d) Intensive subsistence agriculture

8. Which of the following is an economic factor determining the profitability of mining activities?
(a) Technology available for use of mineral
(b) Size of deposit
(c) Grade of deposit
(d) Occurrence of deposit

9. Which of the following areas are famous for the practise of Nomadic Herding?
1. Atlantic shores in North Africa
2. Central China
3. Mongolia

Codes
(a) 1 and 2 (b) 2 and 3
(c) 1, 2 and 3 (d) 1 and 2

10. Transhumance is practised by which of the following tribes?
1. Gujjars 2. Bakkerwals
3. Bhotiyas 4. Pygmies

Codes
(a) 1 and 2
(b) 2, 3 and 4
(c) 1, 2 and 3
(d) 1 and 3

11. Which of the following is not a characteristic of dairy farming practised in the world?
(a) Veterinary services
(b) Labour intensive
(c) Cattle breeding
(d) Practised near rural areas

12. Which of the following is not a feature of plantation agriculture?
(a) Large estates
(b) Crop specialisation
(c) Heavy capital investment
(d) Highly skilled labour

13. 'Ladang' is the name of which of the following agricultural systems?
(a) Plantation Agriculture
(b) Primitive Subsistence Agriculture
(c) Mixed Farming
(d) Dairy Farming

14. Due to which reason Mediterranean region has remained one of the most favourable places to live since human history?
(a) Industrial development (b) Fertile soil
(c) Transport facilities (d) Pleasant climate

15. Identify the activities which are directly related to the environment.
(a) Secondary activities (b) Primary activities
(c) Tertiary activities (d) Quaternary activities

16. Seasonal migration of herders from plains to mountains and vice-versa is known by which of the following names?
(a) Transhumance (b) Pastoral grazing
(c) Nomadic herding (d) Livestock rearing

17. Which of the following pairs is not correctly matched?
(a) The French – developed cocoa and coffee plantations in West Africa.
(b) The British – developed large tea gardens in India and Sri Lanka
(c) The Americans – developed rubber plantations in Malaysia and sugarcane and banana plantations in West Indies.
(d) The Spanish and the Americans – developed coconut and sugarcane plantations in the Philippines.

18. People engaged in which activities are called red-collar workers?
(a) Primary activities (b) Secondary activities
(c) Tertiary activities (d) Quinary activities

19. Which of the following Tribes do not practice transhumance?
(a) Gujjars (b) Bakarwals
(c) Gaddis (d) Bhils

20. Commercial Livestock Rearing is not practiced in
(a) Uruguay (b) Argentina (c) Russia (d) Australia

21. 'Milpa' is practiced in
(a) Mexico (b) South Africa
(c) Argentina (d) Indonesia

22. In 'Truck farming', farmer grews
(a) Vegetables only
(b) Fruits only
(c) Both fruits and vegetables
(d) Dry fruits

23. Arrange the following regions of commercial dairy farming in sequence as per their importance.
1. North-Western Europe
2. Canada
3. South-Eastern Australia, New Zealand and Tasmania

Codes
(a) 1, 2, 3 (b) 3, 1, 2
(c) 2, 1, 3 (d) 1, 3, 2

24. Match the following.

Column I (Types of Agriculture)	Column II (Regions)
A. Mediterranean Agriculture	1. Tunisia
B. Co-operative Farming	2. Netherlands
C. Market Gardening and Horticulture	3. N-E USA
D. Collective Farming	4. USSR
E. Dairy Farming	5. Canada
F. Mixed Farming	6. N-W Europe

Codes

	A	B	C	D	E	F
(a)	1	2	3	4	5	6
(b)	6	5	4	3	2	1
(c)	3	4	5	6	1	2
(d)	3	4	6	2	1	5

25. Match the following.

Column I (Areas of Nomadic Herding)	Column II (Animals)
A. Sahara Desert	1. Camel
B. Andes mountain	2. Cattle
C. Areas	3. Reindeer
D. Tropical Africa	4. Llamas

Codes

	A	B	C	D
(a)	1	2	3	4
(b)	4	3	2	1
(c)	1	4	3	2
(d)	2	3	4	1

ANSWERS

1. (a)	2. (b)	3. (c)	4. (a)	5. (a)	6. (c)	7. (b)	8. (a)	9. (c)	10. (c)
11. (d)	12. (d)	13. (b)	14. (d)	15. (b)	16. (a)	17. (c)	18. (a)	19. (d)	20. (c)
21. (a)	22. (a)	23. (a)	24. (a)	25. (c)					

CHAPTER 06

Secondary Activities

Secondary Activities are involved in transforming raw materials into valuable products. These activities provide finished goods for the consumption of consumers. Thus, secondary activities include manufacturing, processing and construction (infrastructure) industries.

Manufacturing

- Manufacturing refers to the conversion of finished goods through the application of power. Modern manufacturing is characterised by application of power, mass production of identical products and specialised labour in large factories for producing standardised commodities.

Characteristics of Modern Large Scale Manufacturing

- Specialisation of Skills/Methods of Production
- Mechanisation
- Technological Innovation
- Organisational Structure and Stratification
- Uneven Geographic Distribution

Factors Influencing Industrial Location

- Access to Market
- Access to Raw Material
- Access to Labour Supply
- Access to Sources of Energy
- Access to Transportation and Communication Facilities
- Government Policy
- Access to Agglomeration Economies/Links between Industries

Classification of Manufacturing Industries

Industries Based on Size

The size of industries is determined by the amount of capital invested, number of workers employed and volume of production. These industries are

Household Industries or Cottage Manufacturing

- It is a simple and smallest manufacturing unit. The artisans with local raw materials and simple tools produce everyday goods. The work is done at home with the help of their family members or part time labour.
- This sector manufactures some daily use products like food stuffs, fabrics, mats, containers, tools, furniture, shoes and figurines (statue) from wood lot and forest and so on.

Small Scale Manufacturing

- Use of local raw-material, simple power-driven machines, semi-skilled labour and production done in workshop are its main characteristics.
- Countries like India, China, Indonesia and Brazil, etc have developed labour-intensive small scale manufacturing units.

Large Scale Manufacturing

- This industry is characterised by a number of supporting factors like, a large market, various raw materials, enormous use of energy, specialised workers, advanced technology, assembly-line mass production and large capital investments.
- This type of manufacturing has grown in the United Kingdom, North-Eastern USA and Europe.

Industries based on Inputs/ Raw Materials

- These industries are further classified into the following groups

Agro-based Industries

- These industries involve the processing of raw materials obtained from the agricultural farms and fields into finished products to be sold in the rural and urban markets.
- Examples of these industries are food processing, sugar, pickles, textiles (cotton, jute, silk), rubber, etc.

Food Processing

- It includes canning, producing cream, fruit processing and confectionery items.
- Preserving techniques such as drying, **fermenting** and pickling, are used in this industry on a large scale.

Mineral Based Industries

- Minerals are the main raw materials for this industry.
  These are of three types
  (i) Ferrous Metallic Minerals based Industries e.g. iron and steel industries.
  (ii) Non-ferrous Metallic Minerals based Industries e.g. jewellery, copper and aluminium industries.
  (iii) Non-metallic Minerals based Industries e.g. cement and pottery industries.

Chemical Based Industries

- A number of chemical industries use natural chemical minerals. Example of these industries are; petro-chemical industry using mineral oil (petroleum), salt, sulphur and potash industries using natural minerals, synthetic fibres.

Animal Based Industries

These industries are completely based on products obtained from animals. For example, leather for leather industry, wool for woollen textiles. Ivory is also obtained from elephant's tusks.

Industries based on Output/Product

- These are of two types
  (i) **Basic Industries** The industry whose products are used to make other goods by using them as raw materials are basic industries. For example, iron and steel industry.
  (ii) **Consumer Goods/ Non-basic Industries** These industries manufacture such goods which are ready to use for consumers. For example, industries producing breads and biscuits, tea, soaps and toiletries, etc.

Industries Based on Ownership

These industries are

- **Public Sector Industries** In this sector, government has the main authority which owns and manages these industries.
- **Private Sector Industries** Individual investors and private organisations have the authority to own and manage these industries.
- **Joint Sector Industries** These industries are managed jointly by public and private sectors.

Traditional Large-Scale Industrial Regions

- These regions have heavy industries which are located near coal-fields and engaged in metal smelting, heavy engineering, chemical manufacturing or textile production. These heavy industries are now known as **smokestack industries**, as these emit a lot of smoke in the environment.
  The factors that characterise the traditional industrial regions are
  High proportion of employment in manufacturing industries.
  – High-density, inferior quality housing and poor services.
  – Unattractive environment, e.g. high level of pollution, waste heaps, etc.

High Technology Industries

- It is also known as high-tech industry. The advanced scientific and engineering products are manufactured by the application of intensive Research and Development (R and D).
- The notable examples of high-tech industries are robotics on the assembly line, Computer Aided Design (CAD) and manufacturing and so on.

Some Examples of World's Most Important Manufacturing Industries

Iron and Steel Industries

- It is a basic industry. It is also known as heavy industry because it uses large quantities of bulky raw materials and products manufactured in this industry are also heavy.
- Carbon (Coke) and limestone are used to extract iron from iron ore by smelting in a **blast furnace**.

Distribution of Iron and Steel Industry

- Iron and Steel industry is concentrated in the advanced countries of North America, Europe and Asia.

North America

- Most of the production comes from North Appalachian region (Pittsburgh), Great Lake region (Chicago-Gary, Erie, Cleveland, Lorain, Buffalo and Duluth) and the Atlantic Coast (Sparrows Point and Morisville) in USA.

Europe

- The leading producers are UK, Germany, France, Belgium, Luxembourgh, the Netherlands and Russia. The important centres are Scun Thorpe, Port Talbot, Birmingham and Sheffield in UK; Duisburg, Dortmund, Dusseldorf and Essen in Germany; Le

Creusot and St. Ettienne in France; Moscow, St. Petersburg, Lipetsk, Tula in Russia and Krivoi Rog and Donetsk in Ukraine.

Asia

The leading producers are Japan, China and India. The important centres are Nagasaki and Tokyo-Yokohama in Japan; Shanghai, Tienstin and Wuhan in China and Jamshedpur, Kulti-Burnpur, Durgapur, Rourkela, Bhilai, Bokaro, Salem, Visakhapatnam and Bhadravati in India.

Cotton Textile Industry

- This industry requires a huge amount of cotton as raw material. India, China, USA, Pakistan, Uzbekistan, Egypt produce more than half of the world's raw cotton. The UK, North-West European countries and Japan import cotton yarn to produce cotton textile. Europe alone accounts for nearly half of the world's cotton imports.
- It has three sub-sectors
  (i) Handloom Sector (ii) Powerloom Sector
  (iii) Mill Sector

Practice Questions

1. Which of these industries is located close to the source of raw materials?
   (a) Cement (b) Cotton
   (c) Aircraft (d) Diamond cutting
2. Small scale manufacturing is characterised by
   (a) Simple power driven machines
   (b) Highly skilled labour
   (c) Use of imported raw materials
   (d) All of the above
3. Which of the following is a basic industry?
   (a) Aircraft industry (b) Iron industry
   (c) Television industry (d) All of the above
4. Which of the following types of industries do not depend on any specific raw material and can be located at various places?
   (a) Weight losing industries
   (b) Footloose industries
   (c) Weight gaining industries
   (d) Joint sector industries
5. Which of the following regions in USA has become the 'rust bowl' of USA?
   (a) Alabama (b) Pittsburgh
   (c) Buffalo (d) Morrisville
6. Which type of cotton textile industry is highly labour intensive?
   (a) Powerloom (b) Mills
   (c) Handloom (d) Both (a) and (c)
7. Which of the following is a high-tech industrial region?
   (a) California valley (b) Iron valley
   (c) Silicon valley (d) Computer valley
8. Which of the following is/are characteristics of technopolis?
   (a) Regional concentration of high tech industries.
   (b) Presence of highly specialised industries.
   (c) Presence of self-sustaining industries.
   (d) All of the above
9. Consider the following and choose the correct option.
   1. Modern Industries require specialisation in skills.
   2. Research and development strategies have an important role in modern industries.

   Codes
   (a) Only 1 (b) Only 2
   (c) Both 1 and 2 (d) None of these
10. Modern manufacturing is distinguished by-
    1. Complex technology
    2. Division of labour
    3. Specialisation
    4. Small capital investment

    Codes
    (a) 1 and 2 (b) 2, 3 and 4
    (c) 1, 2 and 3 (d) 1, 3 and 4
11. The dependence of industries on labour has reduced because of ..... .
    (a) quality control (b) hydroelectricity
    (c) infrastructure (d) automation
12. When many industries are concentrated in a particular region to share factors of production, it is termed as ..... .
    (a) flexibility
    (b) joint sector
    (c) proffesionalisation
    (d) agglomeration economies
13. Heavy industries which are engaged in metal smelting, heavy engineering and chemical manufacturing are known as ..... .
    (a) technopolis industries (b) smokestacks industries
    (c) furnance industries (d) None of the above
14. Organisational structure and stratification is characterised by
    (a) a complex machine technology
    (b) huge amount of capital
    (c) executive bureaucracy
    (d) (a), (b) and (c) all are correct.

15. Which of the following factor does not influence industrial location?
(a) Access to Market
(b) Access to Labour Supply
(c) Access to Mechanisation
(d) Access to Sources of Energy

16. Fermenting is used in which industry on a large scale?
(a) Agro-based industries
(b) Food processing industries
(c) Cottage industries
(d) Animal based industries

17. Synthetic fibres are an example of which of the following type of industries?
(a) Chemical based Industries
(b) Cottage Manufacturing Industries
(c) Animal based Industries
(d) Agro-based Industries

18. Which of the following is/are examples of Smokestack industries?
(a) Metal smelting industries
(b) Heavy engineering industries
(c) Chemical manufacturing industries
(d) All of the above

19. Jamshedpur, which has iron and steel industry is located in which state of India?
(a) West Bengal (b) Jharkhand
(c) Orissa (d) Chhattisgarh

20. Kulti-Burnpura famous industrial area, is located in which state of India?
(a) West Bengal (b) Orissa
(c) Chhattisgarh (d) Jharkhand

21. Dortmund, Dusseldorf and Essen industrial area is located in which European country?
(a) Spain (b) France
(c) Germany (d) Italy

22. Clereland, Lorain and Duluth industrial region is located in which country?
(a) Sweden
(b) Canada
(c) USA
(d) UK

23. Which of the following countries is/are leading producers of raw cotton?
(a) India (b) China
(c) Pakistan (d) All of these

24. Match the following and choose the correct option

List I (Iron and Steel Industry)	List II (Country)
A. Port Talbot	1. India
B. Yokohama	2. Japan
C. Tienstein	3 China
D. Durgapur	4 United Kingdom

Codes

	A	B	C	D		A	B	C	D
(a)	4	2	1	3	(b)	4	2	3	1
(c)	1	2	4	3	(d)	3	2	4	1

25. Match the following correctly.

List I (Industrial Region)	List II (Location)
A. Great Lakes Region	1. Ukraine
B. Krivoi Rog	2. China
C. Shanghai	3. North America

Codes

	A	B	C		A	B	C
(a)	3	2	1	(b)	3	1	2
(c)	1	3	2	(d)	1	2	3

ANSWERS

1. (a)	2. (a)	3. (b)	4. (b)	5. (b)	6. (c)	7. (c)	8. (d)	9. (c)	10. (c)
11. (d)	12. (d)	13. (b)	14. (d)	15. (c)	16. (b)	17. (a)	18. (d)	19. (b)	20. (a)
21. (c)	22. (c)	23. (d)	24. (b)	25. (b)					

CHAPTER 07

Tertiary and Quaternary Activities

Tertiary Activities

- Tertiary activities are related to **service sector**. Here skilled people are needed who provide services to people against payment of fees.
- Manpower is the main component of tertiary activities as services are provided by professionally trained experts, skilled labourers and consultants.

Types of Tertiary Activities

Trade and Commerce

- Trade is generally associated with **buying and selling** of goods and items which are produced in industries.
- Trading is carried out in towns, cities and big villages which are known as **trading centres**. Trading centres may be divided into rural, periodic and urban marketing centres.

Transport

- Transport is an important service by which people, materials and manufactured goods are physically carried from one location to another.
- Transport distance can be measured as
  - **Kilometre Distance** It is the actual distance of route length measured in km or miles.
  - **Time Distance** It is the time taken to travel on a particular route.
  - **Cost Distance** It is the cost or the expense of travelling on a route.

Communication

- The communication services include many aspects like transmission of **words** and **messages**, **facts** and **ideas**.
- The latest technological innovations like **mobile telephony**, and **satellites** made communication more strong and made it independent of transport.

Telecommunications

- It is the latest form of communication system which is linked to the development of modern technology.
- It saved time of people and reduced it from weeks to minutes. Mobile telephony, has made communication direct and instantaneous.

Mass Media

It is a new revolutionary form of communication. It has become vital for advertising and entertainment. Its examples are

- Radio and Television
- Newspapers
- Satellite Communication
- The Internet

Services

- It means to provide assistance to someone. Services exists at different levels. Services are provided to individual consumers who can afford to pay for them. Services can categorised into two levels
  (i) Low Order Services e.g. grocery shops and laundries.
  (ii) High Order Services e.g. accountants, consultants and physicians.

Types of Services

- Government Aided Services
- Infrastructural Development Services
- Professional Services
- Services based on the Market
- Personal Services

People Engaged in Tertiary Activities

- Every society is served by a number of services, thus people are engaging more in this sector day by day. But this situation is different in developed and developing countries. For example, the proportion of workers employed in service sector is higher in developed countries.

- Whereas, the proportion of workers employed in this sector is comparatively low in less developed countries.

Tourism : An Important Tertiary Activity

- It means travel which is done for purpose of recreation rather than business.
- About 40 per cent world's total GDP (Gross Domestic Product) is generated by this sector. Moreover, many local people are employed to provide services like accommodation, meals, transport, entertainment and special shops to serve the tourists.

Tourist Regions

- The Warmer Places
- The Winter Sports Regions
- Historic Towns

Medical Tourism

- When medical treatment is combined with international tourism activity, it is known as medical tourism.
- Medical tourism brings a lot of benefits to developing countries like India, Thailand, Singapore, and Malaysia.
- Besides medical tourism, outsourcing of medical test and Data interpretation has also become a new trend. Hospitals in India, Switzerland and Australia have been performing medical services like reading **radiology images**, to interpreting **Magnetic Resonance Images** (MRIs) and **ultrasound** tests.

Quaternary Activities

These activities centre around research, development and may be seen as an advanced form of services involving specialised knowledge and technical skills. Quarternary activities involve collection, production and distribution of information.

People Engaged in Quaternary Activities

- The service sector which is knowledge oriented comes under quaternary activities.
- For example, a **medical transcriptionist** and a **CEO of an MNC** (Multi-National Company), They are highly specialised professionals with deep knowledge in their particular field.

Quinary Activities

- Quinary activities are services that focus on the creation, re-arrangement and interpretation of new and existing idea; data interpretation and the use and evaluation of new technologies.
- People engaged in this sector are at the highest level of decision-making or policy making and are referred as **gold collar professionals**. They are considered as a sub-division of tertiary sector, representing special and highly paid skills of senior business executives, government officials, research scientists, financial and legal consultants, etc.

Trends in Quinary Activities

There are some new trends in quinary services like **Knowledge Processing Outsourcing** (KPO) and **home shoring.** Home shoring is an alternative to outsourcing.

Outsourcing

- Outsourcing means giving work to an outside agency to improve efficiency and reduce costs. When outsourcing involves transferring work to overseas locations, it is described by the term **off-shoring**.
- Business activities that are outsourced include Information Technology (IT), human resources, customer support and call centre services and at times also manufacturing and engineering.

Knowledge Processing Outsourcing (KPO)

KPO is different from BPO (Business Processing Outsourcing), because it involves highly skilled professionals. KPO is mainly information based knowledge outsourcing.

The Digital Divide

- Digital Divide basically describes the uneven development of Information and Communication Technology industry in the world. There are wide ranging economic, political and social differences between developed and developing countries and even among the developing countries.
- The main deciding factor of differences in establishment and development of Information and Communication Technology (ICT) in countries is that how actively countries can provide ICT access and benefits to its citizens.

Practice Questions

1. Which of the following is not a characteristic of an urban marketing centre?
   (a) They provide specialised services.
   (b) The provide specialised markets.
   (c) They are organised periodically.
   (d) They provide ordinary services.

2. Which of the following is an example of mass media?
   (a) Television (b) Newspaper
   (c) Radio (d) All of these

3. Which of the following types of services is a lower order service?
   (a) Doctors (b) Launderers
   (c) Legal services (d) Accountants

4. People employed in which of the following activities are known as gold collar workers?
   (a) Tertiary (b) Primary
   (c) Quinary (d) Quarternary

5. Which of the following is not an example of Knowledge Processing Outsourcing (KPO)?
   (a) Business research
   (b) Intellectual property research
   (c) Legal profession
   (d) Outsourcing

6. Which of the following types of markets can generally be periodic markets?
   (a) Urban markets
   (b) Rural markets
   (c) Quasi-urban markets
   (d) None of the above

7. Which of the following is not a quinary activity?
   (a) Decision makers (b) Insurance
   (c) Consultants (d) Policy makers

8. Which of the following will not be included under services?
   (a) Financial banking (b) Insurance
   (c) Rural market (d) Housekeeping

9. Which of the following is the feature of rural marketing centres?
   (a) They provide very basic services.
   (b) Professional services are not well developed.
   (c) They provide facilities for local collection.
   (d) All of the above

10. Which of the following has increased the demand for tourism?
    (a) Transport
    (b) Standard of living
    (c) Package holidays
    (d) All of the above

11. Which of the following is true about tertiary activities?
    1. Tertiary activities are related to service sector.
    2. Manpower is the main component of tertiary activities.
    3. Mining is a tertiary activity.

    Codes
    (a) 1 and 2 (b) 1, 2 and 3
    (c) 2 and 3 (d) 1 and 3

12. Which of the following is a tertiary activity?
    1. Teaching 2. Legal services
    3. Publishing 4. Transport
    5. Plumbing

    Codes
    (a) 1, 2 and 3 (b) 2, 3 and 5
    (c) 1, 2 and 5 (d) All of these

13. Which of the following factors determine the places that tourists visit?
    1. Climate 2. Landscape
    3. History 4. Cost

    Codes
    (a) 1, 2 and 4 (b) 1, 3, and 4
    (c) 1, 2 and 3 (d) All of these

14. ..... lines are drawn on a map to join places equal in terms of the time taken to reach them.
    (a) Isomers (b) Isochrone
    (c) Isobar (d) Isotot

15. Socialised goods and services are provided by which kind of centres?
    (a) Periodic Marketing
    (b) Urban Marketing Centres
    (c) Rural Marketing Centres
    (d) Wholesale Trading

16. Activities that involves collection, production and dissemination of information are called which type of activity?
    (a) Tertiary activities (b) Secondary activities
    (c) Quaternary activities (d) Quinary activities

17. In which of the following forms transport distance can be measured?
    (a) Kilometre Distance (b) Time Distance
    (c) Cost Distance (d) All of these

18. Which of the following is not an example of Mass Media?
    (a) Radio & Television (b) Newspapers
    (c) Magazine **(d) Telegraph**

19. Which of the following services are Government aided services?
(a) Making and Maintaining highways
(b) Maintaining fire fighting departments
(c) Both a and b are correct
(d) None is correct

20. What percentage of total GDP of the world is generated by tourism sector?
(a) 40% (b) 30% (c) 20% (d) 10%

21. Which of the following factors is/are responsible for tourist attraction?
(a) Climate
(b) Landscapes
(c) History and Art
(d) All of these

22. People engaged in which type of activities are called "gold-collar professionals"?
(a) Secondary activities
(b) Tertiary activities
(c) Quaternary activities
(d) Quinary activities

23. What does 'KPO' stands for?
(a) Knowledge Professional Outsource
(b) Knowledge Processing Outsource
(c) Knowledge Programmed Output
(d) None of the above

24. Match the Following.

List-I (Sector of Economy)	List-II (Example)
A. Tertiary	1. Research and Development
B. Quarternary	2. Consultants
C. Quinary	3. Transport

Codes

	A	B	C
(a)	1	2	3
(b)	3	2	1
(c)	3	1	2
(d)	1	3	2

25. Match the Following.

List-I (Tourist Regions)	List-II (Examples)
A. Warmer places	1. City of Varanasi
B. Winter sports region	2. Mediterranean coast
C. Historic towns	3. Himalayas

Codes

	A	B	C
(a)	1	2	3
(b)	2	3	1
(c)	2	1	3
(d)	3	2	1

ANSWERS

1. (c)	2. (d)	3. (b)	4. (c)	5. (d)	6. (b)	7. (b)	8. (c)	9. (d)	10. (d)
11. (a)	12. (d)	13. (d)	14. (b)	15. (b)	16. (c)	17. (d)	18. (d)	19. (c)	20. (a)
21. (d)	22. (d)	23. (b)	24. (c)	25. (b)					

CHAPTER 08

Transport and Communication

Transport

It is a service or facility for the carriage of people and goods from one place to other with the help of humans, animals and various other kinds of vehicles.

- It is an organised service industry created to satisfy the basic needs of society.
- Transport industry involves transport **arteries** (transport routes), vehicles to carry people and goods, and organisations to maintain such routes and handle loading, unloading and delivery of good and services.

Evolution of Transport System

- In its earliest forms, humans themselves were carriers, later animals such as mules, horses, camels were used to transport. With the invention of wheels, carts and wagons were used.
- As the steam engine was invented in the 18th century, it revolutionised the transport system. Railways became the most important and fastest mode of transport in 19th century.
- With the invention of the **internal combustion engine**, road transport became important. Later, new developments emerged such as pipelines, ropeways, cableways etc. Sea transport and air transport also became important.

Modes of Transport

The main modes of transportation include **land, water, air** and **pipelines**. Land, water and air transport carries both passengers and freight whereas pipeline only transports freight (goods and merchandise).

Significance of Modes of Transport

- Ocean freight transport carries international goods.
- Road transport carries goods and people over short distances and provides door to door services. It is cheaper and faster for these type of services.
- Railways are most suitable for large volume of bulky materials over long distances within a country.
- Airways are most suited for high value, light and perishable goods.

Land Transport

Land transport or ground transport is the movement of people, animals, goods and services from one location to another on land.

Roads

- Road transport plays an important role in trade and commerce and also promote tourism in a country. Roads can be **metalled** and **unmetalled**.
- The world's total motorable road length is only 15 million km, of which North America accounts for 33 per cent. The highest **road density** and the highest number of vehicles are registered in this continent (North America) as compared to Western Europe.

Highways

Highways are metalled roads that connect distant places. These are 80m wide and provide separate traffic lanes, bridges, flyovers and dual carriageways.

- In North America, highway density is high at about 0.65 km per sq km. Every place is within 20 km distance from a highway.
- Cities located on the Pacific coast (West) and the Atlantic coast (East) are well connected to each other. Similarly, the cities of Canada (North) and Mexico (South) are well connected with each other. The major highways in the continent are
  - The Trans-Canadian Highway
  - The Alaskan Highway
  - The Pan-American Highway
  - Trans-Continental Stuart Highway

- In Russia, due to the vast geographical area, highways in the country are not as important as railways. Still, a dense highway network is developed in the industrialised region West of the Urals (in Europe) with Moscow as the hub. The important **Moscow-Vladivostok Highway** serves the region to the East (in Asia).
- In China, highways connect all the major cities in criss-cross manner across the country. For example, Tsungtso (near Vietnam Boundary), Shanghai (Central China), Guangzhou (South) and Beijing (North). A new highway links Chengdu with Lhasa in Tibet.
- In Africa, a major highway joins Algiers in the North to Conakry in Guinea. Another highway joins Cairo to Cape Town.

Highways in India

- **The National Highway No. 7 (NH 7)** It connects Varanasi with Kanyakumari. It is the longest highway in India.
- **The Golden Quadrilateral (GQ)** This Super **Expressway** is under construction and will connect the important metropolitan cities i.e. New Delhi, **Mumbai**, Bengaluru, Chennai, Kolkata and Hyderabad.

Border Roads

These are the roads which are built along international boundaries. These are mainly built for defence purposes, to connect remote or inaccessible areas with cities and to transport goods to border villages and military camps.

Railways

- Railways are an important mode of land transport for bulky goods and passengers over long distances.
- Railway gauges are generally classified across different countries as broad gauge (more than 1.5 m), standard gauge (1.44 m), metre gauge (1m) and smaller gauges. In UK, standard gauge is used.
- The first public railway line was opened in 1825 between Stockton and Darlington in Northern England.
- In USA, the development of railways facilitated commercial grain farming, mining and manufacturing in the continental interiors of the country.

Railway Network in the World

Some of the major railway networks are

Europe and Russia

- Europe has one of the most dense rail networks in the world. The length of its rail network is 4,40,000 km and most of which is double or multiple-tracked.
  - **Belgium has the highest density** of 1 km of railway for every 6.5 sq kms area. The important rail heads are London, Paris, Brussels, Milan, Berlin and Warsaw. Underground railways are important in London and Paris.
  - **The Euro Tunnel Group** of England operates Channel Tunnel, which connects London with Paris.
- In Russia, railways alone accounts for about 90 per cent of the country's total transport with a very dense network to the West of the Urals. Moscow is the most important rail head. Underground railways and **commuter trains** are also important in Moscow.

North America and South America

- North America accounts for 40 per cent of the world's total rail network.
- The highly industrialised and urbanised region of East Central USA and adjoining Canada have the most dense rail network.
- In South America, two regions namely the **Pampas of Argentina** and **Brazil** (the coffee growing region) together account for 40 per cent of South America's total route length. Besides, Chile has a considerable route length linking coastal centres with the mining sites in the interior.
- Peru, Bolivia, Euador, Colombia and Venezuela have short single track rail lines from ports to interior with no inter-connecting links. There is only one trans-continental rail route linking Buenos Aires (Argentina) with Valparaiso (Chile) across the Andes mountains through the Uspallatta Pass located at a height of 3,900 m.

Australia and New Zealand

- The length of Australia's rail network is about 40,000 km, of which 25 per cent are found in New South Wales alone. The West-East Australian National Railway line runs across the country from Perth to Sydney.
- In New Zealand, the railways are mainly found in the North Island. This network serves mainly the farming areas.

Asia

- Thickly populated areas of Japan, China and India have the most dense rail networks as compared to other countries.
- Due to the presence of vast deserts and sparsely populated regions, West Asia is the least developed in rail facilities.

Africa

- In spite of being the second largest continent in the world, it has only 40,000 km of railways. South Africa

alone accounts for about 18,000 km route due to the concentration of gold diamond and copper mining activities. The important routes of the continent are

- The **Benguela Railway** through Angola to Katanga-Zambia Copper Belt.
- The **Tanzania Railway** from the Zambian Copper Belt to Dar-es-Salaam on the coast.
- The Railway through **Botswana and Zimbabwe** linking the landlocked states to the South African network.
- The **Blue Train** from Cape Town to Pretoria in the Republic of South Africa.

Trans-Continental Railways

- The main purpose of the construction of trans-continental railways is economic and political reasons.
- They facilitate long runs in different directions of continents. These railways run across the continent and link its two ends. Some of the important trans-continental railways are

Trans- Siberian Railways

- It is a major rail route of Russia. It runs from St. Petersburg in the West to Vladivostok on the Pacific coast in the East. It passes through Moscow, Ufa, Novosibirsk, Irkutsk, Chita and Khabarovsk.
- In Asia, it is the most important route and the **longest** (9,332 km) **double tracked** and electrified trans-continental railway in the world. It made possible to link the Asian region with European markets.
- This runs across the Ural mountain, Ob and Yenisei rivers. Two important centres are *Chita* which is **an important agro-centre** and *Irkutsk*, a **fur centre**.
- This rail network has connecting links to South, namely, to Odessa, (Ukraine), Baku on the Caspian Coast, Tashkent (Uzbekistan), Ulan Bator (Mongolia), and Shenyang (Mukden) and Beijing in China.

Trans-Canadian Railways

- It is 7,050 km long rail line in Canada. It runs from Halifax in East to Vancouver on the Pacific coast passing through Montreal, Ottawa, Winnipeg and Calgary.
- It was constructed in 1886 to make British Colombia on the West coast join the Federation of States.
- A loop line from **Winnipeg to Thunder Bay** (Lake Superior) connects this rail line with one of the important waterways of the world.

The Union and Pacific Railway

It connects New York on the Atlantic coast to San Francisco on the Pacific coast passing through Cleveland, Chicago, Omaha, Evans, Ogden and Sacramento.

The Australian Trans-Continental Railway

- It runs from West to East direction across the Southern part of the continent. It runs from Perth on the West coast, to Sydney on the East coast passing through Kalgoorlie, Broken hill and Port Augusta.
- Besides, other major North-South line connects Adelaide and Alice Spring and further join the Darwin Birdum line.

The Orient Express

- This rail line has reduced the journey time from London to Istanbul to 96 hours as compared to 10 days by the sea route.
- This line runs from **Paris** to **Istanbul** passing through Strasbourg, Munich, Vienna, Budapest and Belgrade.

Water Transport

Water transport is much cheaper than other modes of transport. It has many advantages such as

- It is much cheaper transport system.
- The friction of water is far less than that of land.
- The energy cost of water transportation is also lower.
- It does not require any route construction thus, reduces the cost.
- The oceans are linked with each other and can be travelled with ships of various sizes.
- It only needs port facilities at the two ends of the location.

Sea/Ocean Routes

- In comparison to land and air transport, ocean transport is a cheaper means of **haulage** of bulky material over long distance from one continent to another.
- Modern passenger liners (ships) and cargo ships are equipped with radar, wireless and other navigation aids. Refrigerated chambers for perishable goods, tankers and specialised ships and use of containers, etc also have improved cargo transport.

The North Atlantic Sea Route

- This is the **busiest sea route in the world.** The trade on this route accounts for one fourth of the world's foreign trade which is more than trade over the rest of the routes combined.
- It is also known as **Big Trunk Route** and links North-Eastern USA and North-Western Europe which are the two industrially developed regions of the world.

South Atlantic Sea Route

- It connects West European and West African countries with Brazil, Argentina, and Uruguay in South America. It runs along the Atlantic ocean.
- Due to limited populations and less development in South America and Africa, there is far less traffic on this route as compared to other routes.

The Mediterranean-Indian Ocean Sea Route

- This sea route serves maximum number of countries and people than any other sea route in the world.
- It passes through the heart of the Old World. The important ports on this route are Port Said, Aden, Mumbai, Colombo and Singapore.
- After the construction of **Suez canal**, the distance and time has reduced comparatively to the earlier route through the Cape of Good Hope.

The Cape of Good Hope Sea Route

Across the Atlantic ocean, this sea route connects highly industrialised West European countries to West African countries, South African countries, South-East Asia and commercial agriculture and livestock economies of Australia and New Zealand.

The North Pacific Sea Route

- This sea route links the ports on the West coast of North America with those of Asia.
- The important ports on the West coast of America are Vancouver, Seattle, Portland, San Francisco and Los Angeles.
- The important ports on the Asian side are Yokohama, Kobe, Shanghai, Hong Kong, Manila and Singapore.
- Trade across the North Pacific Ocean moves through several routes, converging at Honolulu. The direct route on Great Circle links Vancouver and Yokohama reducing the travelling distance 2,480 km by half.

The South Pacific Sea Route

- This sea route links Western Europe and North America with Australia, New Zealand and the scattered islands of Pacific Ocean via the Panama canal.
- This sea route also reaches the Hong Kong, Philippines, and Indonesia. The distance covered is 12,000 km from Sydney to Panama. **Honolulu** is an important port on this route.

Coastal Shipping

- **Coastal shipping is a mode of transportation requiring smaller vessel. It is a convenient mode of transportation in countries like USA, China and India having long coastlines.**
- The most suitable place for coastal shipping are the Shenzhen States in Europe, where one member's coast is connected with the other by this transport.

Shipping Canals

Two man-made canals or waterways namely the **Panama** and the **Suez canals**, facilitate the world trade by connecting both the Eastern and Western worlds.

Inland Waterways

- It is a network in the form of rivers, canals, backwaters, creeks and lakes, that can be used for water transportation.
- Boats and steamers are important means of this transport for carrying passengers and cargo.

The Rhine Waterways

- This waterway connects the industrial areas of Switzerland, Germany, France, Belgium and the Netherlands with the North Atlantic Sea Route.
- Rhine river flows through Germany and the Netherlands. It is navigable for 700 km from Rotterdam, at its mouth in the Netherlands to Basel in Switzerland.
- The **Ruhr river** joins the Rhine from the East. It flows through a rich coalfield and the whole basin has become a prosperous manufacturing area. **Dusseldorf** is the important port in this region.

The Danube Waterway

- This waterway rises in the Black Forest and flows Eastwards through many countries.
- This waterway serves Eastern Europe and is navigable up to Taurna Severin.

The Volga Waterway

- It is one of the most important waterways in Russia. It is navigable up to 11,200 km and drains into the Caspian sea.
- It is connected to Moscow region and the Black sea through the Volga-Moscow Canal and the Volga-Don Canal, respectively.

The Great Lakes - St. Lawrence Seaway

- The Soo Canal and Welland Canal are connected to the Great Lakes of North America, namely Superior, Huron, Erie and Ontario to form an inland waterway.
- **Duluth** and **Buffalo** are important ports of this waterway equipped with all facilities of ocean ports.

The Mississippi-Ohio Waterway

It links the interior parts of USA with the Gulf of Mexico in the South. Large steamers navigate through this route upto Minneapolis.

Air Transport

The movement of human and goods by air through aeroplanes, helicopters, etc, is called air transport. It is the fastest mode of transport which is preferred by passengers for long distance travel.

Inter-Continental Air Routes

- A distinct East-West belt of inter-continental air routes is found in the Northern Hemisphere. Eastern USA, Western Europe and South-East Asia have a dense network of air routes. USA alone accounts for 60 per cent of the airways of the world.
- The important nodal points where air routes converge or radiate to all continents are New York, London, Paris, Amsterdam, Frankfurt, Rome, Moscow, Karachi, New Delhi, Mumbai, Bangkok, Singapore, Tokyo, San Francisco, Los Angeles and Chicago.

Pipelines

- Pipeline transport is the transportation of goods or material through pipes.
- Pipelines have immense importance to uninterruptedly transport liquids and gases like water petroleum, natural gas, liquified coal, cooking gas or LPG, etc. In New Zealand, pipelines are also used to supply milk from farms to factories.
- USA has a dense network of oil pipelines which runs from producing areas to the consuming areas. In USA about 17 per cent of all freight per tonne-km is carried through pipelines.

Communication

- Communication is the exchanging of information by speaking, writing or using some other means, e.g. telephone, television, satellites, internet, etc.
- For long distance communications human beings have used different means like **telegraph** and **telephone system** in early phase of communication development.
- The telephone has an important place even in the current phase of communication development. In developing countries the use of **cell phones** (made possible by satellites) is important for rural connectivity.
- In the 1990s with the **digitisation** of information, telecommunication slowly merged with computers to form integrated networks termed as **Internet**.

Satellite Communication

- Satellite communication is the result of the space research done by USA and former USSR since 1970s.
- Artificial satellites are successfully installed in the earth's orbit and they can connect even the remote corners of the globe with limited on-site verification.
- Some of the important satellites of India are
  - **Aryabhatt** It was launched on 19th April 1979.
  - **Bhaskar-I** It was launched in 1979.
  - **Rohini** It was launched in 1980.
  - **APPLE** Arian Passenger Payload Experiment (APPLE) was launched on 18th June, 1981 through Arian rocket.
  - **Bhaskar, Challenger and INSAT I-B** These satellites have made long distance communication, television and radio very effective. e.g. Weather forecasting through television.

Cyberspace or Internet

- Cyberspace or internet is the electronic digital world for communicating or accessing data information over computer networks without physical movement of the sender and receiver. It is encompassed by the **World Wide Web** (www).
- As many people add in the cyberspace world each year, it will expand the contemporary economic and social space of humans through **e-mail, e-commerce, e-learning** and **e-governance**.

Practice Questions

1. Which of the following modes of transport can only carry freight?
(a) Airways (b) Railways (c) Pipelines (d) Roads

2. Which type of transport is most suitable for large volume of bulky materials over long distances within a region?
(a) Airways (b) Roadways (c) Railways (d) Seaways

3. The Trans-Canadian highway connects
(a) Edmonton to Anchorage
(b) Vancouver to St. John's city
(c) Edmonton to Vancouver
(d) Vancouver to Anchorage

4. Trans-Continental Stuart Highway passes through which of these continents?
(a) Australia (b) Europe
(c) North Canada (d) Asia

5. The West-East Australian National Railway line runs across the country from
(a) Melbourne to Sydney (b) Perth to Sydney
(c) Sydney to Alice (d) Alice to Perth

6. Which of the following is the highest railway line in the world?
(a) Peruvian Railways (b) Darjeeling Railways
(c) Nilgiri Rail line (d) Quinghai-Tibet Train

7. Which Railway line runs through Katanga-Zambia Copper Belt?
(a) Tanzania Railways (b) Benguela Railways
(c) Peruvian Railways (d) Trans-Siberian Railways

8. The orient express rail line connects which of these places in Europe and Asia?
(a) London to Istanbul (b) Paris to Istanbul
(c) Munich to Istanbul (d) Zurich to Bangkok

9. After the construction of which of these canals, the travelling time between Mediterranean sea and Indian ocean has been greatly reduced?
(a) Panama canal (b) Suez canal
(c) Kra canal (d) Java canal

10. The South Pacific sea route connects
(a) Western Europe with Australia
(b) West Asia with New Zealand
(c) Western Africa with North America
(d) South America with Oceania

11. Which river supplies freshwater to the Suez canal?
(a) Amazon (b) Nile (c) Congo (d) Murray

12. Valuable cargo and perishable goods can be transferred through which of the following modes of transportation?
(a) Seaways (b) Airways (c) Roads (d) Railways

13. The Big Inch Pipe Line is located in which of these countries?
(a) UK (b) USA (c) Canada (d) Russia

14. What was the number of internet users in 1995 AD?
(a) 20 million (b) 50 million
(c) 120 million (d) 2 billion

15. Rohini satellite was launched in the year
(a) 1960 (b) 1980 (c) 2001 (d) 2010

16. From which of the following cities does the Trans-Siberian Railway passes?
(a) Moscow (b) Istanbul (c) Omaha (d) Evans

17. 'The Blue Train' runs from which city of South Africa?
(a) Cape Town to Pretoria
(b) Johannesburg to Pretoria
(c) Cape Town to Johannesburg
(d) Cape Town to Durban

18. The First Public railway line was opened in 1825 between which cities of England?
(a) Stockton and Darlington
(b) London to Wales
(c) Birmingham to Stockton
(d) Edgbasten to London

19. The Trans-Canadian railways is a ..... km long line in Canada.
(a) 7000 km (b) 7050 km
(c) 1200 km (d) 3600 km

20. The Trans-Canadian railways was constructed in ..... to connect British Columbia with the Federation of states.
(a) 1876 (b) 1886 (c) 1892 (d) 1684

21. The Volga waterway is navigable for a length of ..... km.
(a) 1000 km (b) 11,200 km (c) 2000 km (d) 13,000 km

22. "Honolulu" is an important port on which of the following sea route?
(a) South Atlantic Sea route
(b) The North Pacific sea route
(c) The South Pacific sea route
(d) North Atlantic sea route

23. 'Dusseldorf' is the important port in which region?
(a) The Danube Waterway
(b) The Volga Waterway
(c) The Mississippi-Ohio Waterway
(d) The Rhine Waterway

24. Match the following correctly.

List I (Railway Gauge)	List II (Length)
A. Broad Gauge	1. 1 metre
B. Standard GAuge	2. 1.5 metre or more
C. Metre Gauge	3. 1.44 metre

Codes

	A	B	C		A	B	C
(a)	3	1	2	(b)	2	1	3
(c)	2	3	1	(d)	1	2	3

25. Match the following and choose the correct option.

List I (Connects)	List II (Sea Route)
A. West Europe and West Africa	1. North Atlantic Sea Route
B. NorthAmerica and Asia	2. North Pacific Sea Route
C. N - E USA and N - W Europe	3. Cape of Good Hope Sea Route

Codes

	A	B	C		A	B	C
(a)	1	3	2	(b)	3	2	1
(c)	2	1	3	(d)	2	3	1

ANSWERS

1. (c)	2. (c)	3. (b)	4. (a)	5. (b)	6. (d)	7. (b)	8. (b)	9. (b)	10. (a)
11. (b)	12. (b)	13. (b)	14. (b)	15. (b)	16. (a)	17. (a)	18. (a)	19. (b)	20. (a)
21. (b)	22. (c)	23. (d)	24. (c)	25. (b)					

CHAPTER 09

International Trade

- Trade is a tertiary economic activity. It means the voluntary exchange of goods and services between two people or parties. Trade is mutually beneficial for both the parties as one party **sells** and the other **purchases**.
- It is broadly divided into two levels i.e. **International trade** which means the exchange of goods and services among countries across national boundaries and **National trade** which means the exchange of goods and services among regions or states within a country.

Forms of Exchange in Trade

- In primitive societies **Barter system** was the initial form of trade, where direct exchange of goods took place.
- Barter system made the trade much complex. Most of the time, it was nearly impossible to meet such people who were in need of the same commodities as one needed to exchange. With the introduction of money the difficulties of barter system were reduced.
- In early times, before the introduction of paper and coin currency, rare objects with very high intrinsic value served as money like flintstones, obsidian, *cowrie* shells, tiger's paws, copper, silver and gold etc.

History of International Trade

- In ancient times, trade was restricted only to local markets as transporting goods over long distances was risky.
- Trade of luxury items developed for only the rich people who bought jewellery and costly dresses for their high standard of living.

History of international trade can be seen through the following events such as

Silk Route

- The discovery of Silk Route is an early example of long distance trade as well as trade of luxury items. This Silk Route had a length of 6,000 km, connecting **Rome to China**.
- This route was used to transport Chinese silk, Roman wool and precious metals and many other high value commodities from intermediate points in India, Persia and Central Asia.

Growth of European Commerce

- European commerce grew after the disintegration of the Roman Empire with the development of ocean going warships during the 12th and 13th century.
- Trade between Europe and Asia also grew and the America was discovered.

Slave Trade

- During 15th century when the European commerce was at its peak, the European colonialism emerged and along with the trade of exotic commodities, a new form of trade, known as slave trade emerged.
- In slave trade, African natives were captured and forcefully transported by the Portuguese, Dutch, Spaniards and British in the newly discovered America for their labour in plantations.

Reasons Behind Existence of International Trade

- Specialisation in production is the key factor in international trade. Every nation is specialised in different types of production.
- International trade benefits the world economy, if different countries practise specialisation and division of labour in the production of commodities or supply of services.

International trade is based on the following principles
- Comparative advantage
- Complementarity and transferability of goods and services.
- The principle that trade should be mutually beneficial to the trading partners.

Types of International Trade

International trade is broadly categorised into two types

(i) **Bilateral Trade** It is the trade between two countries on an agreement. Both the countries are

specialised in certain commodities and agree to trade their commodities with each other.

(ii) **Multi-lateral Trade** This type of trade is conducted among many countries. The same country can trade with a number of other countries. The country may also grant the status of the **Most Favoured Nation** (MFN) on some of the trading partners.

Basis of International Trade

International trade is based on the following factors

- **Difference in National Resources** The world's national resources are found unevenly over the space. This is due to differences in their physical structure i.e. geology, relief, soil and climate.
- **Population Factors** The size, distribution and diversity of people between countries affect the type and volume of goods traded between the countries.

Stage of Economic Development

- The nature of commodities changes at different stages of economic development of countries.
- In non-industrialised nations, agriculture is important sector. These countries export agro-products to the industrialised nations and import machinery and finished products from them.
- The industrialised nations exports machinery and finished products and imports food grains and raw materials from developing countries.

Extent of Foreign Investment

- Developing countries which lack in capital required for the development of mining, oil drilling, heavy engineering, lumbering and plantation agriculture boosts their trade by foreign investment.
- By investing in these countries in different sectors, the industrial nations can ensure import of food stuffs, minerals and create markets for their finished products.
- This entire cycle increases the volume of trade between nations.

Transport

- Before the development of modern means of transport, the trade was restricted to local areas. For example, only high value items like gems, silk and spices were traded over long distances.
- With the expansion of rail, ocean and air transport, better means of refrigeration and preservation, there was expansion in trade.

Important Aspects of International Trade

International trade has three important aspects i.e. volume, sectoral composition and direction of trade.

Volume of Trade

- The actual tonnage of goods traded between countries comprises the volume of trade. However, services cannot be measured in tonnage.
- Therefore, volume of trade is measured simply as the **total value of goods and services** traded.

Composition of Trade

- During the last century, the nature of goods and services imported and exported by countries have undergone many changes. For example, in the beginning of the last century trade of **primary products** was dominant.
- Later, **manufactured goods** became important. In the current period **service sector** including travel, transportation and other commercial services have been showing a rising trend. But still manufacturing sector commands the bulk of the global trade. In comparison with the primary and manufacturing sectors, trade in the service is quite different. As services are more profitable than producing goods.

Direction of Trade

- The direction of foreign trade refers to destination of exports and sources of imports of a country.
- In the early times, commodities like valuable goods and artefacts, etc. were exported by the developing countries to European countries. But the 19th century recorded a reversal in the direction of trade.
- During the second half of the 20th century, the scenario of the world trade pattern changed drastically. For example, Europe lost its colonies while countries like India, China and other developing countries started competing with developed countries.

Balance of Trade

- The volume of goods and services imported and exported by a country to other countries is known as balance of trade. It is of two types
  (i) **Negative or Unfavourable Balance of Trade** It occurs when the value of imports is more than the value of a country's exports.
  (ii) **Positive or Favourable Balance of Trade** It occurs when the value of exports is more than the value of imports.

Gateways of International Trade

Ports

- Ports and harbours are known as the chief gateways of international trade.
- Some of the facilities provided by the ports include docking, loading, unloading and the storage facilities for cargo.

- The port authorities provide these facilities through arrangements for maintaining navigable channels, arranging tugs and barges and providing labour and managerial services.

Types of Port

Ports, generally are classified on the types of traffic they handle. There are some other basis on which ports are classified. These are

Types of Ports According to Cargo Handled

- Industrial Ports
- Commercial Ports
- Comprehensive Ports

Types of Ports on the Basis of Location

- Inland Ports
- Out Ports

Types of Port on the Basis of Specialised Functions

- Oil Ports
- Ports of Call
- Packet Station
- Entrepot Ports
- Naval Ports

Trade Liberalisation

- Free trade or trade liberalisation is the act of opening up economies for trading by bringing down trade barriers like tariffs.
- Trade liberalisation encourages competition between goods and services of foreign countries with domestic products and services.
- The economies of developing countries are adversely affected by both globalisation and free trade.
- **Dumped goods** also pose a threat to domestic market as these cheaper goods from foreign countries harm the domestic producers.
- The practice of selling a commodity in two countries at a price that differs for reasons not related to costs is called **dumping**.

World Trade Organisation

- In 1948, **General Agreement for Tariffs and Trade** (GATT) came into existence to liberalise the world from high customs tariffs and other non-tariffs barriers.
- The GATT was transformed by the member countries into a permanent institution for looking after the promotion of free and fair trade among the nations. This was known as World Trade Organisation.
- It was established on 1st January, 1995. WTO headquarters are located in Geneva, Switzerland.
- Around 164 Countries are the member of WTO as on December, 2016. India has been one of the founder members of WTO.
- WTO is the only international organisation dealing with the global rules of trade between nations. The main functions of this organisation are to set rules for the global trading system and resolve disputes between its member nations.
- It also covers trade in services, e.g. telecommunication and banking and other issues including intellectual rights.
- The WTO has many shortcomings due to which it has been criticised and opposed by those countries who are worried about the negative effects of free trade and economic globalisation.

Regional Trade Blocs

Regional Trade Blocs are set up to encourage trade between countries with geographical closeness, similarity and complementarities in trading items and to keep restrictions on trade of the developing world under control.

At present, there are 120 regional trade blocs which occupy 52 per cent of the world trade.

Major Regional Trade

Regional Blocs
ASEAN (Association of South East Asian Nations)
CIS (Commonwealth of Independent States)
EU (European Union)
LAIA (Latin American Integration Association)
NAFTA (North American Free Trade Association)
OPEC (Organisation of Petroleum Exporting Countries)
SAFTA (South Asian Free Trade Agreement)

Practice Questions

1. Which of the following factors determines international trade between countries?
(a) Population (b) Mineral Resources
(c) Foreign Investment (d) All of these

2. Which of the following describes composition of trade?
(a) Total value of goods and services.
(b) Nature of goods and services imported and exported.
(c) Destination of exports and imports.
(d) None of the above

3. Mannheim and Duisburg ports are located on which river?
(a) Rhine (b) Danube
(c) Hughli (d) Mississippi

4. Which of the following ports are used as collection centres?
(a) Pocket station (b) Entrepot ports
(c) Naval ports (d) Call ports

5. The headquarters of WTO is at
(a) Geneva (b) Mumbai
(c) Zurich (d) Istanbul

6. The headquarters of European Union is located at
(a) Vienna (b) Brussels
(c) Minsk (d) Jakarta

7. Which of the following is a member state of Latin American Integration Association (LAIA)?
(a) Sweden (b) Bolivia
(c) Hungary (d) Belarus

8. What is the main motive of OPEC countries?
(a) Reduce tarrifs on international trade
(b) Coordinate and unify petroleum policies
(c) Single market with single currency
(d) Cooperation on matters of politics

9. Where is the headquarter of European union located?
(a) Geneva, Switzerland
(b) Brussels, Belgium
(c) Montevideo, Uruguay
(d) Minsk, Belarus

10 Which of these objects served as a form of money initially before the introduction of paper currency?
1. Obsidian 2. Iron 3. Cloth
4. Copper 5. Silver
Codes
(a) 1, 2, 3 and 4 (b) 2, 3, 4 and
(c) 1, 4 and 5 (d) 2, 3 and 5

11. The silk route had a length of ..... km connecting Rome and China.
(a) 2000 km (b) 6000 km
(c) 60,000 km (d) 1200 km

12. European commerce grew after the disintegration of ..... Empire with the development of ocean going warships in 12th century AD.
(a) Byzantine (b) Roman (c) British (d) Mughal

13. Most of the world's great ports are classified as
(a) Naval ports
(b) Comprehensive ports
(c) Oil ports
(d) Industrial ports

14. Which one of the following continents has the maximum flow of global trade?
(a) Asia (b) Europe
(c) North America (d) Africa

15. Which one of the following South American nations is part of OPEC?
(a) Brazil (b) Venezuela
(b) Chile (d) Peru

16. In which of the following trade blocs, is India an associate member?
(a) SAFTA (b) ASEAN
(c) OECD (d) OPEC

17. Memphis port is located on which river?
(a) Rhine (b) Orange
(c) Mississipi (d) Thames

18. Which of the following is not a tanker port?
(a) Maracaibo (b) Esskhira
(c) Tripoli (d) Abadan

19. Which of the following is not a Entrepot Port?
(a) Copenhagen (b) Rotterdam
(c) Singapore (d) Dover

20. WTO was established on which of the following date?
(a) 1st January, 1995 (b) 1st January 1994
(c) 1st January, 1996 (d) 1st January 1993

21. Where is the Headquater of WTO located?
(a) Geneva, Switzerland
(b) Jakarta, Indonesia
(c) New York, USA
(d) Kathmandu, Nepal

22. Match the following.

List I (Organisation)	List II (Established)
A. ASEAN	1. 1995
B. WTO	2. 1967
C. NAFTA	3. 1994

Codes

	A	B	C
(a)	1	2	3
(c)	3	2	1

	A	B	C
(b)	1	3	2
(d)	2	1	3

23. Match the following.

List I (Types of Port)		List II (Port)
A. Ports of Call	1.	Memphis
B. Inland Port	2.	Aden
C. Tanker Port	3.	Tripoli

Codes

	A	B	C
(a)	1	3	2
(b)	2	1	3
(c)	2	3	1
(d)	1	2	3

24. Arrange the following organisations according to the year of their formation and choose the correct option.

1. ASEAN 2. EU 3. WTO 4. OPEC

Codes

(a) 2, 1, 3, 4 (b) 4, 2, 1, 3 (c) 4, 1, 2, 3 (d) 3, 1, 2, 4

25. Arrange the following events in the history of international trade in a sequential order.

1. Trade on silk route.
2. Trade growth after industrial revolution.
3. Slave trade.
4. Growth of trade between Europe and Asia.

Codes

(a) 1, 3, 2, 4 (b) 1, 4, 3, 2 (c) 2, 1, 3, 4 (d) 1, 2, 3, 4

ANSWERS

1. (d)	**2.** (b)	**3.** (a)	**4.** (b)	**5.** (a)	**6.** (b)	**7.** (b)	**8.** (b)	**9.** (b)	**10.** (c)
11. (b)	**12.** (b)	**13.** (b)	**14.** (b)	**15.** (b)	**16.** (a)	**17.** (c)	**18.** (d)	**19.** (d)	**20.** (a)
21. (a)	**22.** (d)	**23.** (b)	**24.** (c)	**25.** (b)					

CHAPTER 10

Human Settlements

- People live in clusters which constitutes a group of houses. These clusters are called **human settlement**. This may vary from a small hut to a large house of any size which make a village, a town or a city.
- A human settlement is defined as a place inhabited by people permanently or temporarily for a longer duration.

Bases of Classification of Settlements

Rural Urban Dichotomy

Human settlement is broadly classified into urban (town, cities, etc) and rural (villages) settlements. These two types of settlements are differentiated on two basis, such as

(i) **On the Basis of Population** Human settlements can be classified on the basis of size of the population.

(ii) **On the Basis of Economic Activity** This criterion is mainly based on economic activities carried out by people in urban and rural areas which differentiate both the settlements.

Types and Patterns of Settlements

- The ways to classify settlements are their **shape** and **pattern types**. For example,
  (i) Compact or Nucleated Settlements
  (ii) Dispersed Settlements

Rural Settlements

These settlements are closely related to land where primary activities are dominant such as agriculture, animal husbandry, fishing, mining, etc. Size of this settlement is relatively small.

Factors Affecting Location of Rural Settlements

There are some factors that affect the location of rural settlements such as

- **Water Supply** Water bodies like rivers, lakes and springs are most preferable sites for the location of rural settlements.
- **Land** People usually prefer to live near fertile land because these are suitable for agriculture. But in Europe, villages grew up near rolling country avoiding swampy or low lying land.
- **Uplands** People prefer to live in uplands as these prevent damage to houses and loss of life by floods.
- **Building Material** The availability of building material (like stone, wood) is another important factor which affects the location of settlements.
- Houses are built from mud bricks in African Savanna and ice blocks are used to build igloos by Eskimos in polar regions.
- **Defence** Defensive hills and islands are used to build villages in times of political instability, war, hostility of neighbouring groups.

Planned Settlements

- These type of settlements are developed by governments which provide shelter, water and other infrastructures on acquired lands.
- These settlements are not voluntarily chosen by villagers, but these are part of government policies. For example, the scheme of **villagisation in Ethiopia** and the **canal colonies in Indira Gandhi Canal** Command Area in India.

Patterns of Rural Settlement

- Patterns of rural settlements show the way in which houses are located in relation to each other. The shape and size of a village is influenced by the site of the village, the surrounding topography and terrain.
- There are various criteria to classify rural settlements
  (i) **On the Basis of Setting** Important types are plain villages, plateau villages, coastal villages, forest villages and desert villages.
  (ii) **On the Basis of Functions** These include farming villages, fishermen's villages, lumberjack villages, pastoral villages, etc.

(iii) **On the Basis of Forms or Shapes of the Settlements** These settlement are in the form of various **geometrical shapes** like linear, rectangular, circular, star like, T-shaped village, double village, criss-cross shaped village etc.

Problems of Rural Settlements

In most of the developing countries, there are a number of problems found in rural settlements as compared to developed countries. These are discussed below

- Poor Infrastructure
- Poor Supply of Water
- Health Issues
- Poor Building Structure
- Poor Systems of Transport and Communication and Other Infrastructure
- Absence of Proper Villagisation

Urban Settlements

- The definition of urban areas varies from one country to another. The census of India, 1991 defines urban settlements as, "All places which have municipality, corporation, cantonment board or notified town area committee and have a minimum population of 5000 persons, of which at least 75 per cent of male workers are engaged in **non-agricultural pursuits** (activities) and also have a density of population of at least **400 persons per square kilometers** are considered as urban areas".
- Until recent times only a few settlements reached population size of a few thousand inhabitants. Rapid growth of urban areas is a recent phenomenon.

Classification of Urban Settlements

Urban settlements are classified on the basis of size of population, occupational structure and administrative set-up.

Population Size

- Most of the countries use this criteria to define urban areas. Different countries have different lower limits of the population size for urban settlement.
- It is 1500 in Colombia, 2000 in Argentina and Portugal, 2500 in U.S.A and Thailand, 5000 in India and 30,000 in Japan.
- Besides the size of population, a density of 400 persons per square km and share of non-agricultural workers are taken into consideration in India.
- Countries having low density of population choose a lower population number to define a place as urban, compared to densely populated countries.
- For example, countries like Denmark, Sweden and Finland consider a place as urban which have a population size of 250 persons. In Canada and Venezuela, the minimum population for a city is 1000 persons, whereas in Iceland it is 300 persons.

Occupational Structure

- In some countries like India, Italy, etc economic activities along with size of population are used to describe a place as urban settlement.
- If more than 50 per cent of economically productive population in Italy is engaged in non-agricultural activities, then it is considered as urban settlement. India has set this limit to 75 per cent.

Administration

- Some countries consider administrative setup as one of the best criteria to define a settlement as urban. For example, in India, if a place, irrespetive of its size has a municipality, Cantonment Board or Notified Area Council, it is considered as urban settlement.
- In Latin America, such as Brazil and Bolivia, any administrative centre is considered urban irrespective of its population size.

Location

- Location of urban centres is examined with reference to their function. For example,
  - Holiday resorts and tourist centres
  - Strategic towns
  - Mining towns
  - Industrial towns

Administrative Towns

- All the national capitals which have administrative offices of Central Government come in this category. For example, New Delhi, Canberra, Beijing, Addis Ababa, Washington DC and London, etc.
- Provincial towns (sub-national) which have administrative functions also come in this category. For example, Victoria (British Columbia), Albany (New York) and Chennai (Tamil Nadu).

Trading and Commercial Towns

Important trading centres are

- Agricultural market towns like Winnipeg and Kansas city.
- Banking and financial centres like Frankfurt and Amsterdam.
- Large inland centres like Manchester and St. Louis.
- Transport nodes like Lahore, Baghdad, Agra have been important trading centres.

Cultural Towns

- The urban centres, having places of pilgrimage are considered religiously important.
- For example, Jerusalem, Mecca, Jagannath Puri and Varanasi, etc.

Other Functions

- Towns and cities are also categorised on the basis of other functions like
  - Health and recreational towns like Miami and Panaji.
  - Industrial towns like Pittsburgh and Jamshedpur.
  - Mining and quarrying towns like Broken Hill and Dhanbad.
  - Transport towns like Singapore and Mughal Sarai.

Classification of Towns on the Basis of Forms

- The pattern of urban settlements may be **linear, square, star** or **crescent shaped**. Historical and cultural traditions are the dominant control factors of architecture, form, style of buildings and other structures of settlements.
- In developed and developing countries, towns and cities are different in planning and development.
- In developing countries most of the urban settlements are irregular in shapes, whereas in developed countries most cities are well-planned. **For example, Chandigarh and Canberra are planned cities**, while in India smaller towns have historic origin which have evolved from **walled cities** to large **urban sprawls**.

Addis Ababa (The New Flower)

- Addis Ababa is the **capital city of Ethiopia** (African nation), which was established in 1878. It is a 'new city'. Its name is comprised of two words *Addis* and *Ababa* which means New Flower.
- It is located on a hill-valley topography which affect the pattern of road network.

Canberra

- In 1912, **Walter Burley Griffin**, an American landscape architect planned Canberra as the capital of Australia. It was designed as Garden city for 25000 inhabitants taking into account the natural features of the landscape.
- There were five main centres and each had different city functions. During the past few decades, the city has accommodated many satellite towns, which have their own centres.

Types of Urban Settlements

On the basis of size and the services available and dominant functions, urban centres are classified as town, city, million city, conurbation (a large area of urban development), megalopolis.

Town

- The concept of a town can be understood best in reference to a village. A town is an area which is larger than a village but smaller than a city.
- The specific functions such as manufacturing, retail and wholesale trade and professional services that exist in towns mark the difference between the two places.

City

- Cities exhibit a greater number of economic activities and are large in size than towns. These are characterised by transport terminals, major financial institutions and regional administrative offices.
- It is a leading town which has outstripped its local or regional rivals.

Million City

- If population of a city crosses the one million mark, it is known as a million city. Their number is increasing at a fast rate as never before. For example, till 1800 London crossed a million mark, followed by Paris in 1850, New York in 1860, and by 1950 there were around 80 such cities.
- In every three-decades the rate of increase in the number of million cities has been three-fold, for example around 160 in mid 1970s to around 438 in 2005. In 2016 there were 512 cities with atleast 1 million inhabitants.

Conurbation

- In 1915, **Patrick Geddes** coined the term conurbation. It means a large area of urban development which is formed by merging of originally separate towns or cities.
- For example, **Greater London, Manchester, Chicago** and **Tokyo,** etc.

Megalopolis

- The word Megalopolis is a Greek word which means **great city**. It was popularised by **Jean Gottman** in 1957.
- It is a **Super-metropolitan region** which is formed by a group of conurbations.
- The urban area extending from Boston in the North to South of Washington in USA is the best known example of a megalopolis.

Distribution of Mega Cities

- A mega city or megalopolis comprises of a city and its suburbs (outlying districts of a city) and having a population more than 10 million people.
- **The first mega city in the world was New York** which got the status in 1950, with a population of 12.5 million. At present the number of mega cities is 31.

Problems of Human Settlements in Developing Countries

Settlements in developing countries suffer from a lot of problems. These problems are unsustainable concentration of population, congested housing and streets, lack of drinking water facilities, lack of infrastructure such as electricity, sewage disposal, health and education facilities, etc.

Problems of Urban Settlements

- Due to unplanned city development in developing countries, **migration** of people creates various problems like severe **congestion, shortage of housing, vertical expansion** and **growth of slums.**
- The increasing population in urban cities force people to live in low standard houses like **slums** and **squatter** (illegal) settlements.
- For example, in the Asia-Pacific countries, almost 60 per cent of the urban population lives in squatter settlements.

The three major problems of urban settlements are discussed below

- **Economic Problems** Decreasing employment opportunities is a **push factor** which encourages people to migrate from rural areas and smaller urban areas to big cities in developing countries.
- **Socio-Cultural Problems** The cities in developing countries suffer from several social ills. There is **lack of adequate social infrastructure** for fulfilling the basic needs of huge population due to lack of financial resources.
- **Environmental Problems** The wastes generated by domestic households or industries are either let into the general sewerages or dumped at unspecified locations like open spaces or into water bodies without proper treatment.

Practice Questions

1. Which of these factors affects the location of rural settlements?
(a) Presence of nearby source of water.
(b) Hostility of neighbouring groups.
(c) Availability of stone and other building materials.
(d) All of the above

2. Linear pattern of rural settlements are found at which of these places?
(a) On a mountain top
(b) Along a railway line
(c) Where two roads meet a third road
(d) In river valleys

3. London crossed the population of 1 million in which year?
(a) 2005 AD (b) 1895 AD (c) 1810 AD (d) 2000 AD

4. The first city to reach a population of 1 billion was
(a) Canberra (b) London (c) Delhi (d) New York

5. Which one of the following forms of settlements develops along either side of roads, rivers or canals?
(a) Circular (b) Linear
(c) Cross shaped (d) Square

6. Which of these is a/an Administrative town?
(a) Varanasi (b) London
(c) Baghdad (d) Kansas city

7. The city of Canberra was planned by
(a) Daniel Burnham (b) Walter Burley Griffin
(c) Louis Kahn (d) Renzo Piano

8. Which of these is a major cultural town?
(a) Canberra (b) Jerusalem
(c) Pitsburgh (d) St. Louis

9. Which one of the following forms of settlement develops along either side of roads, rivers or canals?
(a) Circular (b) Cross-shaped
(c) Linear (d) Square

10. Which one of the following types of economic activities dominates in all rural settlement?
(a) Primary (b) Secondary
(c) Tertiary (d) Quaternary

11. In which of the following regions the oldest and well-documented urban settlement was found?
(a) Huang He Valley (b) Nile Valley
(c) Indus Valley (d) Mesopotamia

12. How many of the following cities in India have attained the million status at the beginning of 2006?
(a) 40 (b) 41
(c) 42 (d) 43

13. Sufficiency of which type of resources can help to create adequate social infrastructure catering to the needs of the large population in the developing countries?
(a) Financial (b) Natural
(c) Human (d) Social

14. Which of the following is true about human settlements?
1. Human settlement can be defined as a place inhabited permanently by the people.
2. Settlements can be occupied temporarily for shorter periods.

3. There is no consensus in the world to precisely define a village or town.

Codes
(a) 1 and 2 (b) 2 and 3
(c) 1, 2 and 3 (d) 1 and 3

15. Compact or nucleated settlements are usually developed at which of these places?
1. Mountains 2. Plains
3. Grasslands 4. River Valleys

Codes
(a) 1 and 2 (b) 2 and 4
(c) 1 and 3 (d) 1 and 4

16. The rectangular pattern of rural settlements develops in ..... and ..... .
(a) plains, mountains
(b) intermontane valleys, plains
(c) intermontane valleys, along rail lines
(d) along roads, plains

17. The concept of Megalopolis was popularised by ..... .
(a) Jean Gottman (b) Louis Kahn
(c) Renzo Piano (d) Daniel Burnham

18. Which of the following is not a pattern of rural settlement?
(a) Linear Pattern
(b) T-shaped Settlement
(c) Double Village
(d) Spherical Pattern

19. What is the capital of Ethiopia?
(a) Baku (b) Ulan bator
(c) Addis Ababa (d) Mogadishu

20. Which of the following is not a planned city of India?
(a) Bhubaneshwar (b) Noida
(c) Chandigarh (d) Agra

21. Arrange the following in increasing order of their size of population and choose the correct answer.
1. Million city 2. City
3. Conurbation 4. Megalopolis

Codes
(a) 1, 2, 3, 4 (b) 2, 1, 3, 4
(c) 1, 4, 2, 3 (d) 3, 2, 4, 1

22. Arrange the following Mega cities in terms of their population (largest to smallest) and choose the correct option.
1. London 2. Tokyo
3. Mumbai 4. Beijing

Codes
(a) 1, 2, 3, 4 (b) 2, 3, 4, 1 (c) 2, 1, 4, 3 (d) 1, 3, 2, 4

23. Arrange the following cities from North to South and choose the correct answer.
1. London 2. Buenos Aires
3. Delhi 4. Dhaka

Codes
(a) 1, 2, 4, 3 (b) 1, 3, 4, 2
(c) 2, 1, 3, 4 (d) 2, 3, 1, 4

24. Match List I with List II. Select the correct answer using codes given below.

List I (Megacity)	List II (Country)
A. Sao Paulo	1. Peru
B. Lagos	2. Indonesia
C. Jakarta	3. Brazil
D. Lima	4. Nigeria

Codes

	A	B	C	D		A	B	C	D
(a)	4	2	1	3	(b)	1	4	2	3
(c)	1	2	3	4	(d)	3	4	2	1

25. Match the following correctly.

List I (Number of Million cities)	List II (Year)
A. 80	1. 1970
B. 162	2. 2005
C. 438	3. 1950
D. 512	4. 2016

Codes

	A	B	C	D		A	B	C	D
(a)	1	2	3	4	(b)	2	1	3	4
(c)	3	1	2	4	(d)	1	3	2	4

ANSWERS

1. (d)	2. (b)	3. (b)	4. (b)	5. (b)	6. (b)	7. (b)	8. (b)	9. (c)	10. (a)
11. (c)	12. (a)	13. (a)	14. (c)	15. (b)	16. (b)	17. (a)	18. (d)	19. (c)	20. (d)
21. (b)	22. (b)	23. (b)	24. (d)	25. (c)					

CHAPTER 01

Population : Distribution, Density, Growth and Composition

- Census operation held every 10 years in our country. The first population Census in India was conducted in 1872, but its first complete Census was conducted only in 1881.
- India is the second most populous country after China in the world with its total population of 1210 million (2011). India's population is larger than the total population of North America, South America and Australia put together.

Distribution of Population

The pattern of population distribution in India is highly uneven.

- **States and Union Territories with High Population** According to the Census of 2011, Uttar Pradesh (highest population), Maharashtra, Bihar, West Bengal, Andhra Pradesh along with Tamil Nadu, Madhya Pradesh, Rajasthan, Karnataka and Gujarat together account for about 76% of the total population of the country. Union Territory of Delhi and Chandigarh are densely populated.
- **States and Union Territories with Low Population** Jammu and Kashmir (1.04%), Arunachal Pradesh (0.11%) and Uttarakhand (0.84%) have low population, inspite of having fairly large geographical area.

Factors Responsible for Uneven Distribution of Population

The spatial distribution of population in India is uneven because of physical, socio-economic and historical factors.

- **Physical factors** It is clear that **climate** along with terrain and availability of water largely determines the pattern of the population distribution.
- **Socio-economic and historical factors** Among the socio-economic and historical factors of distribution of population, important ones are evolution of settled agriculture and agricultural development; pattern of human settlement; development of transport network, industrialisation and urbanisation.

Density of Population in India

- Density of population, is expressed as number of persons per unit area or per square kilometer.
- The density of population in India (2011) is **382 persons per sq. km** and ranks third among the most densely populated countries of Asia following Bangladesh (849 persons) and Japan (334 persons).
- The density of population in India ranges from as low as 13 persons per sq. km in Arunachal Pradesh to 11297 persons in the National Capital territory of Delhi.

Spatial Variation of Population Density

- **States with Higher Density** Among Northern Indian states, Bihar (1,102), West Bengal (1,029) and Uttar Pradesh (828) have higher densities, while Kerala (859) and Tamil Nadu (555) have higher densities among the Peninsular Indian states.
- **States with Moderate Density** States like Assam (397), Gujarat (308), Andhra Pradesh (308), Haryana (573), Jharkhand (414) and Odisha (269) have moderate density.
- **Low Density Regions** The hill states of Himalayan region and North-Eastern states of India (excluding Assam) have relatively low densities.
- Arunachal Pradesh (17), Mizoram (52), Sikkim (86), Himachal Pradesh (123) and Jammu and Kashmir (124) have very low population density.
- **Density in Union Territories** The UTs like Delhi (11,297), Chandigarh (9,252), Puducherry (2,598), Daman and Diu (2,169)*, Dadra and Nagar Haveli (698)* and Lakshadweep (2,013) have high density of population, whereas Andaman and Nicobar Islands (46) has lowest population density among the UTs.

Calculation of Physiological and Agricultural Density

Physiological density = total population/net cultivated area
Agricultural density = total agricultural population/net cultivated area
Agricultural population includes cultivators and agricultural labourers and their family members.

Growth of Population

Growth of population refers to a change in the number of people living in a particular area between two points of time. The rate of population growth is expressed in percentage.

Population growth has the following two components

(i) **Natural Growth** It is analysed by assessing the crude birth and death rates.

(ii) **Induced Growth** It is described by the volume of inward and outward movement of people in any given area.

In this chapter, we will only discuss the natural growth of population in India.

- The decadal and annual growth of population in India are very high and steadily increasing over time. At present the annual growth of India's population is 1.64 % (2011).

Population Doubing

Population doubling time is the time taken by any population to double itself at its current annual growth rate.

Regional Variation in Population Growth

- The growth rate of population during 1991-2001 in Indian States and Union Territories shows very obvious pattern.
- The States like Kerala, Karnataka, Tamil Nadu, Andhra Pradesh, Odisha, Puducherry, and Goa show a low rate of growth not exceeding 20% over the decade.
- Kerala registered the lowest growth rate (9.4) not only in this group of states but also in the country as a whole.
- A continuous belt of states from West to East in the North-West, North, and North central parts of the country has relatively high growth rate than the Southern states.
- It is in this belt comprising Gujarat, Maharashtra, Rajasthan, Punjab, Haryana, Uttar Pradesh, Uttarakhand, Madhya Pradesh, Sikkim, Assam, West Bengal, Bihar, Chhattisgarh and Jharkhand that the growth rate on the average remained 20-25%.

Growth of Adolescents

- At present the share of adolescents i.e. up to the age group of 10-19 years is about 20.9% (2011), among which male adolescents constitute 52.7% and female adolescents constitute 47.3%.
- There are many challenges for the society as far as these adolescents are concerned, some of which are *as follows:*

(i) Lower age at marriage,
(ii) Illiteracy - particularly Female illiteracy,
(iii) School dropouts,
(iv) Low intake of nutrients,
(v) High rate of maternal mortality of adolescent mothers,
(vi) High rates of HIV/AIDS infections,
(vii) Physical and mental disability or retardedness,
(viii) Drug abuse and alcoholism,
(ix) Juvenile delinquency and competence of crimes, etc.

Practice Questions

1. The population density of India increased from 117 person/sq km in 1951 to ..... persons/sq km in 2011:
(a) 361 (b) 203
(c) 382 (d) 403

2. The Tibeto-Himalayan group of languages is mainly spoken in ..... .
(a) Tamil Nadu (b) Sikkim
(c) Uttar Pradesh (d) Gujarat

3. Which of the following forms the component of a nation?
(a) Population of a country (b) Resources of a country
(c) Economy of a country (d) All of these

4. India's population is larger than the total population of which of the following?
(a) North America (b) South America
(c) Australia (d) All of these

5. Which of the following states is densely populated?
(a) Kerala (b) Tamil Nadu
(c) Maharashtra (d) Karnataka

6. Which of the following is not the area of large population concentration?
(a) Rajasthan
(b) Arunachal Pradesh
(c) Andaman and Nicobar Islands
(d) All of these

7. Which of the following is associated to adolescent population?
(a) Lower age at marriage
(b) Illiteracy, particularly female illiteracy
(c) Low intake of nutrients
(d) All of the above

8. Which of the following pairs is not correctly matched?
(a) Phase I – Negative population growth rate
(b) Phase II – Steady growth rate
(c) Phase III – Population explosion
(d) Phase IV – Low Population Growth

9. Arrange the following States/UTs in descending order in terms of their percentage of urban population as per the Census 2011.
1. Delhi
2. Kerala
3. Maharashtra
4. Assam

Codes
(a) 1 2 3 4
(b) 4 3 2 1
(c) 3 4 2 1
(d) 1 4 2 3

10. Arrange the following states in the descending order in terms of their population density as per the Census 2011.
1. Uttar Pradesh
2. West Bengal
3. Haryana
4. Bihar

Codes
(a) 1 2 3 4
(b) 4 3 2 1
(c) 4 2 1 3
(d) 3 2 4 1

11. Which of these factors are responsible for uneven distribution of population in India?
1. Climate and terrain
2. Development of transport network
3. Concentration of natural resources

Codes
(a) 1 and 2
(b) 1, 2 and 3
(c) 2 and 3
(d) 1 and 3

12. Which of the following States/UTs are arranged in decreasing order of their percentage of urban population correctly?
(a) Delhi, Maharashtra, Kerala, Assam
(b) Delhi, Kerala, Maharashtra, Assam
(c) Maharashtra, Delhi, Kerala, Assam
(d) Assam, Delhi, Maharashtra, Kerala

13. Arrange the following states in the decreasing order in terms of their population density.
(a) Uttar Pradesh, West Bengal, Bihar
(b) West Bengal, Uttar Pradesh, Bihar
(c) Bihar, Uttar Pradesh, West Bengal
(d) Bihar, West Bengal, Uttar Pradesh

14. Growth of population refers to a change in the number of people using in a particular area between two points of time.
The rate of population growth is expressed in percentage.

A.	Stagnant phase	1921-1951
B.	Population Explosion phase	1901-1921
C.	High growth with definite signs of slowing down	After 1981

Codes

	A	B	C		A	B	C
(a)	3	2	1	(b)	3	1	2
(c)	2	1	3	(d)	1	3	2

15. According to 2011 Census, which one of the following states has the highest proportion of urban population in India?
(a) Maharashtra
(b) Kerala
(c) Goa
(d) Tamil Nadu

16. Which of these factors has led to increasing density of population in Jharkhand which was earlier sparsely populated?
1. Availability of mineral resources
2. Better transport facility
3. Irrigation system

Codes
(a) 1 and 2
(b) Only 1
(c) Only 2
(d) 1 and 3

17. What percentage of total population does Uttarakhand share
(a) 2%
(b) 3%
(c) 1%
(d) Less than 1%

18. What is the population density of Bangladesh?
(a) 849
(b) 890
(c) 901
(d) 432

19. What is the population density of Assam as per census 2011?
(a) 308
(b) 140
(c) 290
(d) 397

20. What is the population density of Arunachal Pradesh as per census 2011?
(a) 47
(b) 38
(c) 17
(d) 12

21. Which of the following are the challenges for the growth of Adolescents.
(a) lower age at Marriage
(b) School dropouts
(c) High rates of HIV/AIDS infections
(d) All of the above

22. Consider the following statements and choose the correct option from the given options.
1. It is observed that the North Indian Plains, Deltas and Coastal Plains have higher proportion of population.
2. The interior districts of central Indian states and Himalayas also have higher proportion of population.

Options
(a) Only 1 is correct
(b) Only 2 is correct
(c) Both the statements are incorrect
(d) Both statements are correct and statement 2 correctly explains the statement

23. Consider the following statements and choose the correct option from the given options.

1. Areas which were earlier thinly populated now have moderate to high concentration of population.
2. Development of irrigation facilities, availability of mineral and energy resources and development of transport network lead to population increase.

Options
(a) Only 1 is correct
(b) Only 2 is correct
(c) Both the statements are incorrect
(d) Both statements are correct and statement 2 correctly explains the statement 1

ANSWERS

1. (c)	2. (d)	3. (d)	4. (d)	5. (a)	6. (d)	7. (d)	8. (d)	9. (a)	10. (c)
11. (b)	12. (b)	13. (d)	14. (c)	15. (c)	16. (b)	17. (d)	18. (a)	19. (d)	20. (c)
21. (d)	22. (a)	23. (d)							

CHAPTER 02

Migration : Types, Causes and Consequences

Migration

The movement of population from one place to another is known as migration.

- Migration is an integral part and a very important factor in redistributing population over time and space. India has witnessed the waves of migrants coming to the country from Central and West Asia and also from South-East Asia.
- In fact, the history of India is a history of waves of migrants coming and settling one after another in different parts of the country.
- Similarly, large number of people from India too have been migrating to places in search of better opportunities specially to the countries of the Middle-East, Western Europe, America, Australia and East and South-East Asia.
- In the Census of India, migration is enumerated on two bases
  - (i) **Place of birth**, if the place of birth is different from the place of enumeration (known as life-time migrant);
  - (ii) **Place of residence**, if the place of last residence is different from the place of enumeration (known as migrant by place of last residence).

Streams of Migration

There are two types of migration

Internal Migration

- It refers to the movement of people within a country or nation. This can be intra-state and inter-state migration.
- There are four streams of migration identified under the internal migration
  - (i) Rural to Rural (R-R)
  - (ii) Rural to Urban (R-U)
  - (iii) Urban to Urban (U-U)
  - (iv) Urban to Rural (U-R)
- In India, at the time of Census 2011, out of 455 million migrants, 141.9 million had changed their place of residence in the last ten years. Out of these, 118.7 million were intra-state migrants.
- Females dominate the streams of short distance rural-rural migrants in both inter-state and intra-state migration due to marriage. Whereas men dominate the rural-urban stream of inter-state migrants on the account of economic reasons.

International Migration

- It refers to the movement of people out of their country or out of the geopolitical border. India receives a large number of international migrants mostly from neighbouring countries.
- As per the Census 2011, there were more than 5 million persons that came from other countries to India. Out of these, 88.9% comes from the neighbouring countries. The highest migrants were from Bangladesh followed by Nepal and Pakistan.
- As far as emigration from India is concerned, there are around 20 million people of Indian Diaspora, spread across 110 countries in the world.

Spatial Variation in Migration

- In India, there is an uneven trend of migration which can be seen in terms of **in-migration** and **out-migration**.
- Some states like Maharashtra, Delhi, Gujarat and Haryana attract migrants from other states such as Uttar Pradesh, Bihar, etc.
- Maharashtra occupied first place in the list with 2.3 million net in-migrants, followed by Delhi, Gujarat and Haryana. On the other hand, Uttar Pradesh and Bihar were the states, which had the largest number of net out-migrants from the state.
- Among the Urban Agglomeration (UA), Greater Mumbai received the higher number of in-migrants.

Causes of Migration

People, generally are emotionally attached to their place of birth. But millions of people leave their places of birth and residence. There could be variety of reasons.

These reasons can be put into two broad categories

Push Factors

These are factors which force people to leave their place of residence or origin. Push factors mainly lead to rural-urban migration in India. Some of them are as follows

- Natural disaster like flood, drought, cyclonic storms, earthquake, tsunami, etc.
- Political/local conflicts like war, insurgency, riots, etc.
- Poverty and lack of employment opportunities.
- High population pressure on land.
- Lack of basic infrastructural facilities like healthcare, education, etc.

Pull Factors

These refers to factors which attract a large number of people from rural areas to urban areas of India. Some of them are as follows

- Better opportunities for education.
- Better health facilities.
- Source of entertainment.
- Availability of regular work and relatively high wages.

Consequences of Migration

Migration creates both benefits and problems for the areas people migrate from and migrate to. Consequences can be observed in economic, social, cultural, political and demographic terms.

Economic Consequences

- A major benefit for the source region is the **remittance** sent by migrants. Remittances from the international migrants are one of the major sources of foreign exchange.
- Migration from rural areas of Eastern Uttar Pradesh, Bihar, Madhya Pradesh and Odisha to the rural areas of Punjab, Haryana, Western Uttar Pradesh accounted for the success of Green Revolution strategy for agricultural development.
- Unregulated migration to the metropolitan cities of India has caused overcrowding. Development of slums in industrially developed states such as Maharashtra, Gujarat, Karnataka, Tamil Nadu and Delhi is a negative consequence of unregulated migration within the country.

Demographic Consequences

- Rural-urban migration is one of the important factors contributing to the population growth of cities.
- Age and skill selective out migration from the rural area have adverse effect on the rural demographic structure.
- High out migration from Uttarakhand, Rajasthan, Madhya Pradesh and Eastern Maharashtra have brought serious imbalances in age and sex composition in these states. Similar imbalances are also brought in the recipients states.

Social Consequences

- The new ideas related to new technologies, family planning, girl's education, etc., get diffused from urban to rural areas through migrants.
- The positive contribution of migration is that it leads to intermixing of people from diverse cultures.
- Negative consequence such as anonymity creates social vacuum and sense of dejection among individuals. Feeling of dejection may lead people to fall in the trap of anti-social activities like crime and drug abuse.

Environmental Consequences

Due to over-exploitation of natural resources, cities are facing the acute problem of depletion of ground water, air pollution, disposal of sewage and management of solid wastes.

Others Consequences

- Migration affects the status of women directly or indirectly. In the rural areas, male selective out migration leaving their wives behind puts extra physical as well mental pressure on the women.
- Migration of 'women' either for education or employment enhances their autonomy and role in the economy, but also increases their vulnerability.
- If remittances are the major benefits of migration from the point of view of the source region, the loss of human resources particularly highly skilled people is the most serious cost.

Practice Questions

1. In which census 'place of birth' and 'duration of residence' categories were added?
(a) 1951 (b) 1961 (c) 1971 (d) 1981

2. Internal migration is divided into how many streams?
(a) 1 (b) 2 (c) 3 (d) 4

3. From which of these countries, maximum number of migrants have come to India?
(a) Sri Lanka (b) Bangladesh
(c) Nepal (d) Pakistan

4. Women mainly migrate in India on the account of
(a) work (b) employment
(c) marriage (d) education

5. Which one of following is the main reason for male migration in India?
(a) Education (b) Business
(c) Work and employment (d) Marriage

6. Which one of the following is not a Push factor?
(a) Water Shortage
(b) Medical/Educational facilities
(c) Unemployment
(d) Epidemics

7. Which of the following regions is the main contributor of immigrants in India?
(a) Central Asia (b) West Asia
(c) South-East Asia (d) All of these

8. Which of the following regions acts as a magnet to pull emigrants from India?
(a) Middle East (b) Western Europe
(c) America (d) All of these

9. Which of the following was the major modification associated to migration introduced by the Government of India in the Census 1961?
(a) Duration of work (b) Place of birth
(c) Duration of residence (d) Both (b) and (c)

10. Which of the following best describes 'Life-time migrant'?
(a) If the place of birth and place of enumeration are same, the person is known as 'Life-time migrant.'
(b) If the place of birth is different from place of enumeration, the person is known as 'Life-time migrant.'
(c) The person who leaves his country permanently is known as 'Life-time migrant.'
(d) A person who comes to live permanently in a foreign country is known as 'Life-time migrant.'

11. Which of the following is not an example of Pull factor of migration in India?
(a) Natural disaster like flood, drought, cyclonic storms etc.
(b) Political/local conflicts like war, insurgency, riots, etc.
(c) Poverty and lack of employment opportunities.
(d) All of the above

12. Which of the following pairs is not correctly matched?

Consequences of Migration	Examples
(a) Economic	Remittances
(b) Demographic	Redistribution of the population within a country
(c) Social	Diffusing new ideas of science and technology
(d) Environmental	Planned growth of cities

13. Arrange the following reasons of female migration by last residence in descending order as per their percentage.
1. Work 2. Education
3. Moved after Birth 4. Marriage
Codes
(a) 1 2 3 4 (b) 4 2 3 1
(c) 3 2 4 1 (d) 3 2 1 4

14. Arrange the following neighbouring countries in descending order as per their percentage share to immigrants in India.
1. Bangladesh 2. China
3. Bhutan 4. Nepal
Codes
(a) 1 4 2 3 (b) 1 2 3 4
(c) 4 3 2 1 (d) 3 2 4 1

15. Which of these countries are arranged correctly in the descending order of immigrations to India?
(a) China, Pakistan, Sri Lanka, Bangladesh
(b) Bangladesh, China, Sri Lanka, Pakistan
(c) Bangladesh, Pakistan, Sri Lanka, China
(d) China, Bangladesh, Pakistan, Sri Lanka

16. Which of States/UTs are correctly arranged in the ascending order of immigration to them?
(a) Gujarat, Maharashtra, Delhi
(b) Gujarat, Delhi, Maharashtra
(c) Delhi, Gujarat, Maharashtra
(d) Maharashtra, Delhi, Gujarat

17. Which of the following are the streams of Internal Migration?
(a) Rural to Rural [R-R]
(b) Rural to Urban [R-U]
(c) Urban to Urban [U-U]
(d) All of these

18. Females of India dominates which stream of Internal Migration?
(a) Rural to Urban [R-U]
(b) Urban to Rural [U-R]
(c) Rural to Rural [R-R]
(d) Urban to Urban [U-U]

19. Among the Urban Agglomeration [UA], which plan has received the higher number of in - migrants?
(a) Greater Mumbai (b) Greater Noida
(c) Delhi (d) Banglore

20. What is the main reason behind the female migration in India?
(a) Education (b) Marriage
(c) Financial Crisis (d) None of these

21. Which of the following is not a pull factor?
(a) Better Opportunities of Education
(b) Better health facilities
(c) High population pressure on land
(d) Source of entertainment

22. Which year onwards, the third wave of migration started in which doctors, engineers, financial experts migrated to countries like Canada, UK and USA?
(a) 1960 (b) 1970 (c) 1975 (d) 1980

23. Match the following.

A. Economic	1. Age selective migration
B. Demographic	2. Diffuses cultures
C. Social	3. Problem of Air pollution
D. Environmental	4. Flow of remittances

Codes

	A	B	C	D
(a)	3	2	1	4
(b)	4	1	2	3
(c)	1	2	3	4
(d)	2	4	1	3

24. Match the following.

Subjects	Meaning
A. Immigration	1. Coming of people into a country
B. Emigration	2. Better health services
C. Push factor	3. Leaving one's own country
D. Pull factor	4. Insurgency

Codes

	A	B	C	D
(a)	1	3	4	2
(b)	4	3	2	1
(c)	2	3	4	1
(d)	1	4	2	3

25. Consider the following statements and choose the correct option from the given options.
1. Migration has a deep impact on the status of women.
2. Migration of women for education and employment gives them more freedom and role in economy, however, it increases their vulnerability.

Options
(a) Only 1 is correct
(b) Only 2 is correct
(c) Both the statements are incorrect
(d) Both statements are correct and statement 2 correctly explains the statement 1

ANSWERS

1. (b)	2. (d)	3. (b)	4. (c)	5. (c)	6. (b)	7. (d)	8. (d)	9. (d)	10. (b)
11. (d)	12. (d)	13. (d)	14. (a)	15. (c)	16. (b)	17. (d)	18. (c)	19. (a)	20. (b)
21. (c)	22. (a)	23. (b)	24. (a)	25. (d)					

CHAPTER 03

Human Development

Development occurs when there is a positive changes in qualities. Development is different from growth as former is qualitative while latter is quantative. The concept of Human Development is one step ahead of development, it is more holistic in nature. The concept of Human development was introduced in 1990's.

Meaning's of Development

- According to the Western or Euro-centric view of development, development is associated with **modernisation, leisure, comfort** and **affluence**.
- In the modern times, computerisation, industrialisation, efficient transport and communication system, education system, advanced and modern medical facilities, safety and security of individuals etc are considered as symbols of development.

Imbalanced Development in India

- Some areas such as metropolitan centres and developed areas have all the modern facilities that are available to its small section of population.
- On the other hand, there are rural areas and slums in urban areas that lack in basic facilities such as potable and clean water, education and health infrastructure etc.
- The opportunities for development among different sections of the society widely varies. Majority of scheduled castes, scheduled tribes, landless agricultural labourers, poor farmers, females and slum dwellers etc are the most marginalised section of the society.
- A large segment of female population is the worst sufferers among all.
- It is also important to note that, relative as well as absolute conditions of many of these marginalised sections have worsened with the development over the years.
- There is another interrelated aspect of development that directly influences deteriorating human conditions.
- It is the environmental pollution, including the air, water and noise pollution that threatens the existence of humans.

Consequences of Imbalanced Development

- Imbalanced development has resulted in poverty and sub-human living conditions for a vast number of people.
- Environmental degradation has created lot of problems for human beings. It has also adversely affected their quality of life.
- Most importantly, the poor have been subjected to three inter-related processes of declining capabilities
  - (i) **Decline in Social Capabilities** Due to displacement and weakening social ties (social capital).
  - (ii) **Decline in Environmental Capabilities** Due to harmful pollution.
  - (iii) **Decline in Personal Capabilities** Due to increasing diseases and accidents.

Human Development

- According to United Nations Development Programme (UNDP), "Human development is the process of enlarging the range of people's choices, providing them more opportunities for education, health, empowerment, income and covering all the choices from a healthy physical environment to economic, social and political freedom."
- The all round development of an individual is the most significant aspect of human development.
- Living a long and healthy life, education and access to resources needed for a decent standard of living alongwith political freedom, human rights and dignity are the basis of human development.

Human Development Report of the UNDP

- The first systematic effort in the area of human development was made by **United Nations Development Programme** (UNDP) by publishing the first Human Development Report (HDR) in 1990.

- This report is annually published by UNDP since 1990. UNDP is responsible for making and amending the indicators to decide the human development of all countries. The rank is based on calculated scores.

Human Development in India

India, with a population of 1.20 billion, is placed in the category of medium human development in the Human Development Index (HDI) (UNDP, 2018). It is ranked 130 among 189 countries of the world with a composite HDI value of 0.640. In HDI of 2019, India was placed at 129th position.

Shortcomings in Approach to Calculate HDI

- Low scores and poor rank is a matter of serious concern for India and many developing countries. But, the HDI has been criticised on its approach and indicators used to calculate the index values and rankings of states/countries.
- Factors that have not been taken into consideration while calculating the value of human development index include
  (i) Historical factors such as colonisation, imperialism, and neo-imperialism.
  (ii) Socio-cultural factors such as human rights violation, social discrimination on the basis of race, religion, gender, caste etc.
  (iii) Social issues like crimes, terrorism and war.
  (iv) Political factors like nature of state and forms of government (democracy or dictatorship) and level of empowerment.

Human Development Report of the Planning Commission

- Human Development Report for India was also prepared by the Planning Commission of India (now NITI Aayog) by using the indicators selected by UNDP.
- It used the States and Union Territories as the unit of analysis.
- The final HDI prepared by the Planning Commission of India had used indicators such as economic attainment, social empowerment, social distributive justice, accessibility, hygiene and various welfare measures taken by the states.
  Some of these indicators are discussed below

Indicators of Economic Attainments

- Economic productivity forms an integral part of human development. Without economic prosperity human development is not possible.
- Rich resource base and access to these resources by all sections of society, particularly the poor and the marginalised, is essential for well-being and human development.
- Gross National Product (GNP) and its per capita availability are taken as measures to assess the resource base/endowment of any country.
- GNP is the total economic output of a country's citizens. Economic achievements and well being of individuals depend upon economic growth, employment opportunities and access to resources.
- Over the years, the per capita income as well as consumption expenditure in India has increased due to which there has been a consistent decline in the proportion of population living below the poverty line. Poverty is an important aspect of economic attainment. It is discussed below

Poverty

- Poverty is a state or condition in which a person or community does not have enough financial resources to meet their basic needs like food, clothing, shelter, etc.
- In other words, it is a state of deprivation. It reflects the inability of an individual to satisfy certain basic needs to sustain healthy and reasonably productive life.

Note *Dadar and Nagar Haveli and Daman and Diu are merged with each other.*

Indicators of a Healthy Life

- Life free from illness and living a reasonably long life span are the indicators of a healthy life.
- It is measured by pre and post natal availability of adequate health facilities for reducing infant mortalities and post delivery deaths of mothers, old age health care, proper nutrition and safety of people.

India has done reasonably well in some of these health indicators

Death/ Mortality Rate It refers to a number of deaths during a particular period or time.

Average Life Expectancy Rate It refers to the average number of years that a person can expect to live. It has increased from 37.1 years to 66.9 years for males and 36.2 to 70 years for females during 1951-2015.

Birth Rate It refers to number of births during a particular period or time. India has also brought down its birth rate from 40.8 in 1951 to 20.8 in 2015. But it is still higher as compared to developed countries.

Sex Ratio It is the ratio of females per 1000 males in a population. As far as the sex ratio is considered, the situation is quite alarming. Sex ratio in India is declining after every decade.

Indicators of Social Empowerment

- Freedom from hunger, poverty, servitude (slavery), bondage, ignorance, illiteracy and other forms of domination is the key to human development.
- Freedom is possible only with the empowerment and participation of the people by using their capabilities and choices.
- Knowledge about the society and environment is neccessary for freedom. This can happen through literacy as it opens the door of a world of knowledge and freedom.

Human Development Index for India

- The erstwhile Planning Commission calculated the Human Development Index for India by using the above mentioned (Economic Attainment, Heathy Life, and Social Empowerment) indicators. States and UTs were taken as the unit of analysis.
- Kerala topped the index, with a composite index value of 0.790. It was followed by Delhi, Himachal Pradesh, Goa and Punjab. States such as Bihar, Odisha were at the bottom of the table among the 23 major states in India.

Reasons for Variation in HDI of Different States in India

Reasons for the variation in the Human Development Index of different states, are as follows:

- Higher number of literates is the main reason for high HDI value in Kerala i.e, achieved nearly hundred per cent literacy. On the other hand, Bihar, Odisha, Madhya Pradesh, Assam and Uttar Pradesh have low composite value of HDI because of their lowest literacy rate. States that have higher literacy rates have less gaps between the male and female literacy rates.
- Economic development also has very important role in HDI. Economically developed states like Maharashtra, Tamil Nadu, Punjab and Haryana have higher values of HDI as compared to states like Chhattisgarh, Bihar and Madhya Pradesh.

Population, Environment and Development

- Development in general and human development in particular is a complex concept. It is complex as it was considered as a substantive concept, which when achieved will resolve all the socio-cultural and environmental ills of the society.
- Although, development has been able to improve the quality of life but it has also led to increasing regional disparities, social inequalities, discriminations, deprivations, displacement of people, abuse of human rights, undermining human values and environmental degradation.
- Considering this 'other' side of development, the UNDP tried to amend the inbuilt biases and prejudices which were entrenched in the concept of development in the 1993 Human Development Report.
- The 1993 report was mainly concerned with participation of people and their security.
- It focussed upon progressive democratisation (enhancing participation of people in governance) and empowering people as the minimum and basic conditions for human development.
- The report of 1993 recognised greater constructive role of 'Civil Societies' in bringing peace and human development.

Neo-Malthusian and Environmentalist's Views on Development

- Scholar like Sir Robert Malthus expressed his concern about the growing scarcity of resources as compared to human population in the world.
- Neo-Malthusians, environmentalists and radical ecologists, influenced by Malthusian believed that a proper balance between resources and population is necessary for a happy and peaceful life and human development.
- According to them the gap between resources and population has widened after the 18th century. This has been due to marginal expansion in resources of the world in the last hundred years in comparison to rapids growth in the human population in the same period of time.

Criticism of Neo-Malthusian Views

The argument that there must be a balance between natural resources and population is logical but it has been criticised on the basis of following grounds :

(i) Resources are not a neutral category, and the social distribution of resources is important rather than their availability.

(ii) Resources are unevenly distributed, the rich countries and people have access to large resources and the poor have little access to resources.

(iii) The primary cause of conflict and contradictions between population-resource and development is the unending pursuit for control of more and more resources by powerful countries and people.

Indian and Development

- Indian culture and civilisation have been very sensitive to the issues of population, resources and development for a long time. Our ancient scriptures were essentially concerned about the balance and harmony among the elements of nature.
- Mahatma Gandhi advocated the reinforcement of the harmony and balances between population and resources. He argued that industrialisation has institutionalised the loss of morality, spirituality, self-reliance, non-violence and mutual co-operation and environment.
- According to him, higher goals in the life of a person or by a nation can be achieved through the austerity simplicity for individual, trusteeship of social wealth and non-violence.

Practice Questions

1. Which one of the following is the best description of development?
   (a) An increase in size
   (b) A constant in size
   (c) A positive change in quality
   (d) A simple change in quality
2. Which of the following section of the society are included under marginalised section?
   (a) Scheduled Caste (b) Scheduled Tribe
   (c) Landless Labourers (d) All of these
3. Which of the following is the reason leading to decline in personal capabilities of the people?
   (a) Weakening social ties (b) Pollution
   (c) Increasing diseases (d) Displacement of people
4. In which year the first Human Development Report was published?
   (a) 1985 (b) 1990
   (c) 1992 (d) 1995
5. What is India's rank in 2019 Human Development Index.
   (a) 129 (b) 130 (c) 131 (d) 132
6. Which of these human development report mentions that "Development must be woven around people, and not people around development"?
   (a) HDR, 1990 (b) HDR, 2016
   (c) HDR, 2013 (d) HDR, 1993
7. India's Human Development Index is released by which Organisation/Ministry?
   (a) Planning Commission
   (b) Ministry of Social Justice
   (c) NITI Aayog
   (d) Ministry of HRD
8. The indicator used by the erstwhile planning commission includes
   (a) Healthy life (b) Economic attainment
   (c) Social empowerment (d) All the above
9. Which of these states has recorded more than 30% of people living below poverty line in 2011-12?
   (a) Maharashtra (b) Manipur
   (c) West Bengal (d) Punjab
10. Which of these is the reason that few states have higher levels of human development as compared to others?
    (a) Economic development
    (b) Literacy levels
    (c) Levels of regional imbalance
    (d) All of the above
11. Which one of the following is India's rank in terms of Human Development Index among the countries of the world in 2016?
    (a) 126 (b) 138
    (c) 134 (d) 131
12. Which one of the following states of India has the highest rank in the Human Development Index?
    (a) Tamil Nadu (b) Punjab
    (c) Kerala (d) Haryana
13. Which one of the following states of India has the lowest female literacy?
    (a) Jammu and Kashmir
    (b) Arunachal Pradesh
    (c) Jharkhand
    (d) Bihar
14. Which one of the following states of India has the lowest female child sex ratio 0-6 years?
    (a) Gujarat
    (b) Haryana
    (c) Punjab
    (d) Himachal Pradesh
15. Which one of the following Union Territories of India has the highest literacy rate?
    (a) Lakshadweep
    (b) Chandigarh
    (c) Daman and Diu
    (d) Andman and Nicobar islands
16. Improvements in which of the following would lead to human development?
    1. Political freedom 2. Education
    3. Human rights 4. Access to resources
    Codes
    (a) 1 and 2 (b) 2, 3 and 4
    (c) 1, 3 and 4 (d) All of these

17. Which of the following is/are the adverse effects of imbalanced human development?
1. Ecological degradation
2. Shortage of basic facilities
3. Rise in social capabilities

Codes
(a) 1 and 2 (b) 1, 2 and 3
(c) 2 and 3 (d) 1 and 3

18. Which of the following is correctly arranged in terms of per cent of population living below poverty line, in the increasing order?
(a) Jharkhand, Chhattisgarh, Rajasthan, Punjab
(b) Chhattisgarh, Rajasthan, Punjab, Jharkhand
(c) Rajasthan, Chhattisgarh, Punjab, Jharkhand
(d) Punjab, Rajasthan, Jharkhand, Chhattisgarh

19. Choose the correct arrangement of states in terms of their increasing order of female literacy.
(a) Rajasthan, Mizoram, Kerala, Nagaland
(b) Himachal Pradesh, Rajasthan, Mizoram, Kerala
(c) Rajasthan, Himachal Pradesh, Mizoram, Kerala
(d) Kerala, Rajasthan, Mizoram, Himachal Pradesh

20. What are the consequences of imbalanced development?
(a) Decline in social capabilities
(b) Decline in environmental capabilities
(c) Decline in personal capabilities
(d) All of the above

21. Which of the following States/UTs do not have less than 10% population living below the poverty line?
(a) Himachal Pradesh (b) Puducherry
(c) Sikkim (d) Manipur

22. Which of the following states has 10%-20% population living below the poverty line?
(a) Andhra Pradesh (b) Bihar
(c) Punjab (d) Nagaland

23. Female literacy in India is [as per 2011 census]
(a) 74.04% (b) 65.46%
(c) 68.04% (d) 61.23%

24. In which year Swachh Bharat Mission was launched?
(a) 2014 (b) 2015 (c) 2013 (d) 2016

25. Match the Following.

	Rank (UNDP, 2018 Report)	Country
A. Norway	1.	1
B. Sri Lanka	2.	76
C. India	3.	130
D. USA	4.	13

Codes
(a) A-4, B-2, C-1, D-3 (b) A-3, B-2, C-1, D-4
(c) A-2, B-1, C-4, D-3 (d) A-1, B-2, C-3, D-4

ANSWERS

1. (c)	2. (d)	3. (c)	4. (b)	5. (a)	6. (d)	7. (c)	8. (d)	9. (b)	10. (d)
11. (d)	12. (c)	13. (d)	14. (b)	15. (a)	16. (d)	17. (a)	18. (d)	19. (c)	20. (d)
21. (d)	22. (d)	23. (b)	24. (a)	25. (d)					

CHAPTER 04

Human Settlements

- Human settlement refers to the cluster or group of houses of any type or size where human beings live. The process of settlement involves building houses by people and other structures and controlling a specific territory as their resource or economic support base.
- Settlements could be small and sparsely spaced or they may also be large and closely spaced. The sparsely located small settlements are called **rural settlements** (villages) and closely spaced large settlements are known as **urban settlements**.

Rural Settlements

- The people of rural settlements are mainly engaged in primary activities like agriculture, fishing, mining, etc. These areas are the main source of raw material and food for urban settlements.
- Rural people have good social relationship as people in villages are less mobile as a result of which they give sufficient time to each other.

Types of Rural Settlements

- Types of settlement depend upon the extent of the area on which an individual house is built (built up area) and distance between the two houses (interhouse distance). In India, there are various type or size of rural settlements.
- There are various factors and conditions responsible for having different types of rural settlements.

These factors are

(i) **Physical Factors** These include nature of terrain, altitude, climate and availability of water.

(ii) **Cultural and Ethnic Factors** These include social structure, caste and religion.

(iii) **Security Factors** These include defence against thefts and robberies.

Rural settlements in India can broadly divided into four types

Clustered, Agglomerated or Nucleated Settlements

- **The clustered rural settlement is a compact or a closely built up area of houses. The houses in these** settlements generally have no space between houses. The living place is distinct and separated from the surrounding farms, barns and pastures.
- These settlements sometimes present a clear pattern or geometrical shapes like rectangular, radial, linear, etc. These are generally found in fertile alluvial plains (Northern plains) and in North-Eastern states.
- In Bundelkhand region of central India and Nagaland, people live in these settlement for **defence and security purposes**. In Rajasthan, these settlements are built around or near water resources **due to water scarcity** and for maximum utilisation of available water reasources.

Semi-Clustered Settlements/ Fragmented Settlements

They may be formed due to tendency of clustering in a restricted area of dispersed settlement.

- These types of settlements may also develop due to **fragmentation** or **separation** of a large compact village. In this case, one or more sections of the village society choose or is forced to live away from the main cluster or group.
- Here, a dominant community occupies the central part of the main village and people of lower strata (level) of society settle on the outer part of village. These are common in plains of Gujarat and Rajasthan.

Hamleted Settlements

- These settlements are formed due to segmentation of a large village due to ethnic and social factors. These settlements are fragmented into several units which are physically separated from each other. These units are locally known as *panna, para, palli, nagla, dhani* etc. in various regions of the country.
- **Each small settlement (hamlet) is a unit and has a number of houses. Several units of hamlets collectively form a village, e.g. in middle and lower Ganga plain, Chhattisgarh and lower valleys of Himalayas.**

Dispersed Settlements / Isolated Settlements

- These settlements in India appear in the form of **isolated huts** or **hamlets**. They are found in remote jungles or on small hills with farms or pastures on the slopes.
- The dispersed settlements are formed due to extremely fragmented terrain and land resource base of the habitable areas. Such settlement are mainly found in Meghalaya, Uttarakhand, Himachal Pradesh, Kerala, etc.

Urban Settlements

- These are usually more dense, compact and larger in size as compared to rural settlements. Here, people are mostly engaged in non-agricultural activities i.e. industries, services, administrative functions, etc.
- Cities and towns both are connected directly as well as indirectly with villages. They exchange goods and services with each other either directly or through a series of market towns and cities. Towns are important urban settlement in the country.

Evolution of Towns in India

- The evolution of towns started in India from prehistoric times, e.g. Harappa and Mohenjodaro towns at the time of Indus Valley Civilisation.
- Evolution continued with periodic ups and downs until the arrival of Europeans in India in the eighteenth century.

Indian towns may be classified into three groups on the basis of their evolution in different periods which are:

Ancient Towns These towns were developed around 2000 years ago by the various kings as religious and cultural centres, e.g. Varanasi, Prayag (Prayagraj), Pataliputra (Patna), Madurai, etc.

Medieval Towns These towns were developed as headquarters of principalities and kingdoms by medieval kings and sultans of India.

Modern Towns The British and other Europeans established their bases first at the coastal locations, developed trading ports such as Surat, Daman, Goa, Pondicherry etc. Later, the British consolidated their hold around three main centres- Mumbai (Bombay), Chennai (Madras) and Kolkata (Calcutta) building them in the British style.

Difference between Rural and Urban Settlements

Rural and urban settlements can be differentiated on the following grounds

Economic Activities People of rural settlements are mainly engaged in primary activities. Whereas people of urban areas are mainly engaged in processing of raw materials and manufacturing of finished goods and a variety of services like transport, communication, healthcare, food service, banking, law, etc.

Functional Relationship Rural and urban areas are linked through transport and communication network. Rural areas provide raw materials and food to urban areas and their industries. In the same way, urban areas provide its goods and services to all rural as well as urban people.

Social Relationship, Attitude and Outlook Rural and urban areas are much different from each other in terms of social life, attitude and outlook. In urban areas, social relations are formal, way of life is fast moving and complex. On the other hand, in rural areas people rarely move out of their village (less mobile), so their social bonding is stronger.

Classification of Towns on the Basis of Population Size

- Census of India is responsible for defining and classifying urban areas in India. Cities and urban areas are classified into six classes by census of India.
- Urban areas use their population size as base. Thus, an urban area having a population of more than one lakh is considered as **city or class I town.**
- Cities that have population more than one million but less than 5 million are considered as **metropolitan cities.** Cities that have population more than 5 million are considered as **Mega cities or Megalopolis.**
- Apart from these cities, there are urban agglomerations in India. Majority of metropolitans and mega-cities are urban agglomerations. According to Census of India, an urban agglomeration may be formed by any one of the following three combinations
  - (i) A town and its adjoining urban outgrowths.
  - (ii) Two or more adjoining towns with or without their outgrowths.
  - (iii) A city and one or more adjoining towns with their outgrowths together forming a contiguous spread.
- Greater Mumbai is the largest urban agglomeration with 18.4 million people. Delhi, Kolkata, Chennai, Bengaluru and Hyderabad are other mega cities in India.

Classification of Towns on the Basis of Function

- **Administrative Towns and Cities** These towns work as administrative headquarters of higher order. Government offices, departments, etc are mainly concentrated in these cities. e.g. Chandigarh, New Delhi, Bhopal, Shillong, Guwahati, Imphal, Srinagar, Gandhinagar, Jaipur and Chennai, etc.

- **Industrial Towns** These towns/cities are mainly dominated by industries. For example, Jamshedpur, Salem, Coimbatone, Modinagar, Hugli, Bhilai, Durgapur, Mumbai, etc.
- **Transport Cities** Transportation is the main function of these cities. Port towns are examples of these towns that are always busy in transporting commodities to other cities or countries, e.g. Kandla, Kochchi, Kozhikode, Vishakhapatnam, etc.
- **Commercial Towns** The important functions of these towns are trade and commerce, e.g. Kolkata, Saharanpur, Satna, etc.
- **Mining Towns** These towns have developed in mineral rich areas. For example, Raniganj, Jharia, Digboi, Ankaleshwar, Singrauli, etc.
- **Garrisson Cantonment Towns** These towns are meant for the army or defence purpose. For example, Ambala, Jalandhar, Mhow, Babina, Udhampur, etc.
- **Educational Towns** Initially these towns were important education centres, but later they emerged as major campus towns, e.g. Roorkee, Varanasi, Aligarh, Pilani, Allahabad, etc.
- **Religious and Cultural Towns** These towns are famous for pilgrimage, religious worship or cultural significance, e.g. Varanasi, Mathura, Amritsar, Madurai, Puri, Ajmer, Pushkar, Tirupati, Kurukshetra, Haridwar, Ujjain, etc.
- **Tourist Towns** These towns are famous tourist activities. They attract wide range of tourists from India and all over the world.

Smart Cities Mission

The Smart Cities Mission was launched in 2015 with an objective to promote cities that provide core infrastructure, a clean and sustainable environment and a decent quality of life to its citizens.

One of the features of smart cities is to apply smart solutions to infrastructure and services in order to make them better. For e.g. Making areas less vulnerable to disasters, using fewer resources and providing affordable services.

The focus is on sustainable and inclusive development and the idea is to look at compact areas, create a replicable model, which acts as a model for other aspiring cities..

Urbanisation in India

- Urbanisation is the transition of rural population into urban population. The level of urbanisation is measured by the percentage of urban population to the total population.
- In India, the level of urbanisation is very low in comparison to developed countries.Only 31.16% people lives in cities in India as per Census, 2011.

Trends of Urbanisation in India

- The trends of urbanisation in India can be seen by the fact that the number of towns in India in 1901 were only 1827 (10.84% population) which increased to about 6171 (31.16%) in 2011. This indicates that rate of urbanisation in India is slow.
- Total urban population has increased eleven fold during twentieth century. Enlargement of urban centres and emergence of new towns have played a significant role in the growth of urban population and urbanisation. But the growth rate of urbanisation has declined in the last two decades.

Practice Questions

1. Palli and nagla belong to which one of the following rural settlements?
   (a) Dispersed settlements
   (b) Hamleted settlements
   (c) Clustered settlements
   (d) Semi-clustered settlements

2. Which of these is the largest urban agglomeration in India?
   (a) Ambala (b) Greater Mumbai
   (c) Delhi (d) Kolkata

3. Out of the total population of India, what percentage of population lives in urban areas (in 2011)?
   (a) 38% (b) 13.8%
   (c) 10.8% (d) 31%

4. Semi-clustered settlements are formed in India at which of these places?
   (a) Bundelkhand region (b) Gujarat plains
   (c) Nagaland (d) Himalayan slopes

5. Which of these is true about Rural settlements-
   1. They are sparsely populated.
   2. Population of rural settlements is engaged in secondary activities.
   3. Rural settlements provide raw materials to occupations in the urban settlements.

   Codes
   (a) 1 and 2
   (b) 1 and 3
   (c) 1, 2 and 3
   (d) 2 and 3

6. The formation of various types of rural settlements depend upon
   1. Climate 2. Ethnic factors
   3. Security 4. Terrain

   Codes
   (a) 1, 2 and 3 (b) 2, 3 and 4
   (d) 2 and 3 (d) All of these

7. Which of these are the characteristics of semi-clustered settlements?

1. They are formed by fragmentation of a large compact village.
2. The land owning dominant community occupies the central portion of the main village.
3. They are found in lower portions of mountain slopes.

Codes

(a) 1 and 2 (b) 1, 2 and 3
(c) 2 and 3 (d) 1 and 3

8. Ghaziabad, Rohtak, Gurugram are the examples of ..... .

(a) Port towns (b) Garrison towns
(c) Satellite towns (d) Transport towns

9. Nucleated Settlements are found in which region of India?

(a) Baghelkhand (b) Rohilkhand
(c) Bundelkhan (d) Malwa

10. Isolated huts are the example of

(a) Hamleted settlemets (b) Dispersed settlements
(c) Fragmented settlements (d) Clustered settlements

11. In how many categories the Indian towns were classified by census of India?

(a) 4 (b) 8 (c) 3 (d) 6

12. Which of the following cities is not a Mega city?

(a) Delhi (b) Mumbai
(c) Kolkata (d) Chandigarh

13. Which of the following is not a religious town city?

(a) Pushkar (b) Varanasi
(c) Mathura (d) Agra

14. Which of the following can be classified as a large settlement?

(a) Hamlets (b) Urban Municipality
(c) Metropolitan areas (d) None of the above

15. Which of the following factor is responsible for development of a compact settlement in the Rajasthan region?

(a) High temperature (b) Hot winds
(c) Water resources (d) All of these

16. A city which have a population between 1 million and 5 million is known as

(a) Urban agglomeration
(b) Metropolitan city
(c) Mega city
(d) Micro city

17. What proportion of Indian population lives in Mega cities?

(a) One third (b) One fourth
(c) One fifth (d) One tenth

18. Which of these is correctly arranged in sequence of their ranks in size?

(a) Kolkata, Chennai, Pune, Greater Mumbai
(b) Greater Mumbai, Chennai, Kolkata, Pune
(c) Pune, Greater Mumbai, Chennai, Kolkata
(d) Greater Mumbai, Kolkata, Chennai, Pune

19. Match the following pairs correctly and choose the correct answer.

List I (Type)	List II (Town)
A. Industrial Town	1. Pachmarhi
B. Satellite Town	2. Hughli
C. Tourist Town	3. Ujjain
D. Cultural Town	4. Ghaziabad

Codes

	A	B	C	D		A	B	C	D
(a)	2	4	1	3	(b)	3	1	4	2
(c)	3	2	1	4	(d)	4	2	1	3

20. Match the following and choose the correct answer.

List I (Class)	List II (No. of cities in India)
A. Class I	1. 468
B. Class II	2. 474
C. Class III	3. 1373
D. Class IV	4. 1683

Codes

	A	B	C	D		A	B	C	D
(a)	1	4	2	3	(b)	2	4	1	3
(c)	1	2	3	4	(d)	1	2	3	4

ANSWERS

1. (b)	2. (b)	3. (d)	4. (b)	5. (b)	6. (d)	7. (a)	8. (c)	9. (c)	10. (b)
11. (d)	12. (d)	13. (d)	14. (c)	15. (c)	16. (b)	17. (c)	18. (d)	19. (a)	20. (d)

CHAPTER 05

Land Resources and Agriculture

Land is an important resource for human beings which is used for different purposes such as production, residence and recreation. Different types of lands are suited for different uses. Land is put to use for building schools, roads, parks, agricultural farms, pasturelands etc.

Land Use Categories

- Land-use records are maintained by land revenue department. All the land use categories together add up to the **reporting area.**
- The reporting area is different from **geographical area** which is measured by **Survey of India.**
- The reporting area may change, depending upon the estimates of the land revenue records but the geographical area remains fixed.

The land-use categories as maintained in the Land Revenue Records are as follows

(i) **Forests** The area under actual forest cover and area classified as forest by the government differ from each other. The area classified as forest is the area that is demarcated by the government for forest growth.
(ii) Land put to non-agricultural uses
(iii) Barren and wastelands
(iv) Area under permanent pastures and grazing lands
(v) Area under miscellaneous tree crops and groves
(vi) Culturable wasteland
(vii) Current fallow
(viii) Fallow other than current fallow
(ix) Net sown area

Categories that have Recorded an Increase

Four categories of land use have undergone increases. For example, Share of area under forest, area under non-agricultural uses, current fallow lands and net area sown has registered an increase.

The following observations can be made with reference to these increases

(i) The rate of increase is **highest** in the area under **non-agricultural** uses. This is due to the changing structure of Indian economy, which is **shifting** towards **industrial** and **service** sectors and **expansion of infrastructure.**
(ii) There has been increase in area under forest. It is due to the increase in demarcated area under forest rather than an actual increase in forest cover.
(iii) There has been an increase in current fallow land. But the trend of current fallow fluctuates a lot as it is dependent on rainfall and cropping cycles.
(iv) There has been an increase in net area sown which is due to the use of culturable waste land for agricultural purposes.

Categories that have Registered a Decline

Four categories that registered a decline are barren and wasteland, culturable wasteland, area under pastures and tree crops and fallow land.

Following are the explanations for declining trends

- Due to increase in pressure on land from agricultural and non-agricultural sectors, wastelands and culturable wastelands have witnessed decline over time.
- The decline in land under pastures and grazing. Illegal expansion of cultivation on common pasture lands is largely responsible for the decline in pastures and grazing land.

Common Property Resources

- Land, according to its ownership can be broadly classified into private land and Common Property Resources (CPRs)
- **Private land is owned by an individual or a group of individuals, whereas, common property resources are owned by the state for the use of the community.**

Importance of CPRs for the Poor and Women

- In rural areas, CPRs are important for the livelihood of the landless and marginal farmers and other weaker sections as many of them depend upon the income from their livestock as they have limited access to land.
- These are also important for women as most of the fodder and fuel collection is done by women in rural areas.

Agricultural Land Use in India

- Land resource is important for the livelihood of the people depending on agriculture as
  - Contribution of land in agricultural output is more as compared to its contributions in other sectors.
  - Quality of land directly influences productivity of agriculture. More fertile land provides more output/production.
  - Ownership of land is related to social status in rural areas. It is also seen as security for credit, natural hazards or life contingencies.
- Total stock of the agricultural land resources or total cultivable land can be calculated by adding up net sown area, all fallow lands and culturable wasteland.
- There has been a small decline in the available total stock of cultivable land as a percentage of total reporting area.
- There has been great decline in cultivated land even when there has been a corresponding decline in cultivable wasteland.
- The scope for bringing in additional land under net area sown is limited. But to improve production there is urgent need to evolve land saving technologies. These can be classified into
  (i) Technologies that raise the yield of a crop per unit area of land.
  (ii) Technologies that increase the total output per unit area of land from all the crops grown over one year by increasing land-use intensity.
- The advantage of second type of technology is that it increases output from limited land and also increases demand for labour. It is most suitable for a land scarce and labour abundant country like India.

Cropping Seasons in India

There are three distinct crop seasons in the Northern and interior parts of country i.e. *kharif*, *rabi* and *zaid*.

(i) The *kharif* season begins with South-West monsoon under which the cultivation of tropical crops such as rice, cotton, jute, jowar, bajra and tur etc is possible.

(ii) The *rabi* season begins with the onset of winter in October-November are ends in March-April. The low temperature conditions during this season facilitate the cultivation of temperate and subtropical crops like wheat, gram and mustard.

(iii) *Zaid* is the short duration summer cropping season which begins after harvesting of rabi crops. Cultivation of watermelons, cucumbers, vegetables and fodder crops is done on irrigated lands.

Types of Farming

In India, farming is classified on the basis of source of moisture available for crops.

- **Irrigated Farming** The main source of moisture in this farming is irrigation by various methods i.e. wells, tubewells, etc. It has two types i.e. protective and productive irrigation
- **Rainfed Farming (Barani)** The main source of moisture for this farming is rainfall. On the basis of adequacy of soil mositure, it is classified into two types
  (i) Dryland farming
  (ii) Wetland farming

Foodgrains

Foodgrains are important for Indian agricultural economy as they constitute about two-third of total cropped area in the country. The foodgrains are classified as cereals and pulses on the basis of structure of grains

Cereals Cereals in India are classified as fine grains (rice, wheat) and coarse grains (Jowar, bajra, maize, ragi). The description of important cereals is given below.

Fine Grains

Fine grain cereals include rice and wheat.

Rice It is a staple food for the majority of population in India. The yield level of rice is high in Punjab, Tamil Nadu, Haryana, Andhra Pradesh, Telangana, West Bengal and Kerala. In the first four states like Punjab, Tamil Nadu, Haryana and Andhra Pradesh almost the entire land under rice cultivation is irrigated.

Wheat It is the second most important cereal crop in India after rice. The five leading wheat producing states of India are Uttar Pradesh, Madhya Pradesh, Punjab, Haryana, Rajasthan.

Coarse Grains

Coarse grains generally refer to cereal grains other than wheat and rice. These crops are grown in almost 16.50% of total cropped area in the country.

These coarse grains are

- **Jowar/Sorghum** Jowar is main food crop in semi-arid areas of Central and Southern India. The other major producers are Maharastra, Karnataka, Madhya Pradesh, Andhra Pradesh and Telangana.
- **Bajra** It is sown in hot and dry climatic conditions in North-Western and Western parts of the country. The major producers of bajra are Maharashtra, Gujarat, Uttar Pradesh, Rajasthan and Haryana.
- **Maize** It is sown all over India except Punjab and Eastern and North-Eastern regions. The leading producers are Karnataka, Madhya Pradesh, Bihar, Andhra Pradesh, Telangana, Rajasthan and Uttar Pradesh.
- **Pulses** These are confined to the drylands of Deccan and central plateaus and North-Western parts of the country.
- **Gram** Gram is a rainfed crop cultivated in sub-tropical areas. Main producers of gram are Madhya Pradesh, Uttar Pradesh, Maharashtra, Andhra Pradesh, Telangana and Rajasthan.
- **Tur (Arhar)** It is the second most important pulse crop in the country. Maharashtra is the leading producer of tur which produces about one-third of tur in India. Other producer states are Uttar Pradesh, Karnataka, Gujarat and Madhya Pradesh.
- **Oilseeds** Marathwada region in Maharashtra, Gujarat, Rajasthan, Telangana, Rayalseema of Andhra Pradesh and Karnataka plateau are regions where oil seeds are grown.
- **Groundnut** It covers about 3.6% of total cropped area in the country. Gujarat, Rajasthan, Tamil Nadu, Andhra Pradesh, Karnataka and Maharashtra are the leading producers.
- **Rapeseed and Mustard** Rajasthan contributes about one-third production, while other leading producers are Haryana and Madhya Pradesh.
- **Other Oilseeds Soyabean** is mostly grown in Madhya Pradesh and Maharashtra.

Fibre Crops

These are the crops which provide fibre for preparing cloth bags, sacks, etc. It includes

Cotton

- It is a tropical crop and grown in *kharif* season in semi-arid areas of the country.
- India is the 2nd largest producer of cotton after China.
- There cotton growing areas of India are Punjab, Haryana and Northern Rajasthan, Gujarat and Maharashtra Plateaus of Andhra Pradesh, Karnataka and Tamil Nadu.

Jute

- It is used for making coarse cloth, bags, sacks and decorative items. India lost a large part of jute producing areas to East Pakistan, (Bangladesh) during partition.
- West Bengal is the largest producer of jute in the country other producers are Bihar and Assam.

Other Crops

Sugarcane

- It is a crop of tropical areas. It is cultivated under rainfed conditions in sub-humid and humid climates.
- In 2015, India was the second largest producer of sugarcane after Brazil.
- Two- fifth or 40% of production of sugarcane is in Uttar Pradesh. Other leading producers are Maharashtra, Karnataka, Tamil Nadu and Andhra Pradesh where yield of sugarcane is high.

Tea

- Tea is a plantation crop used as a beverage. Black tea leaves are fermented and green tea leaves are unfermented ones.
- It ranks second among tea exporting countries in the world after China (2016).
- Assam accounts for about 53.2% of total cropped area and contributes more than 50% of total production of tea. Other leading producers are West Bengal and Tamil Nadu.

Coffee

- It is a tropical plantation crop. India mostly grows superior quality 'arabica coffee, which is in great demand in international market.'
- Karnataka is the largest producer of coffee that produces more than two-third (66%) of India's total coffee. Besides this, Kerala and Tamil Nadu are also important producers.
- Coffee is mainly produced in highlands of Western Ghats in these three states.

Agricultural Development in India

Agriculture is an important sector of Indian Economy. A number of strategies and plannings has been initiated by the government to improve its condition. These are discussed below

Strategy of Development

- Before independence, Indian agricultural economy was subsistence in nature. It witnessed severe droughts and famines which was the reason for its poor performance in 1st half of 20th century.
- During partition, about one-third of the irrigated land of undivided India went to Pakistan. This significantly reduced the proportion of irrigated area in India.

Thus, the major objective of government policies after the Independence was to increase food grain production by the following strategies

- Shifting from cash crops to food crops especially after Green Revolution.
- Expansion of cultivated area by growing food crops on fallow and cultivable land.
- The emphasis on intensification growing more crops over same piece of land of cropping over already cultivated land.

- Initially this strategy led to increase in the food grain production. But agricultural production fell again in the late 1950s. To overcome this fall in production, Intensive Agricultural District Programme (IADP) and Intensive Agricultural Area Programme (IAAP) were launched.
- But again in the 1960s, two back to back droughts led to food crisis in the country due to which food grains had to be imported from other countries.

Green Revolution

- Green Revolution gave a serious push to Indian agriculture. During the mid 1960s, new High Yielding Variety (HYV) of seeds of wheat (Mexico) and Rice (Philippines) were available.
- India introduced the package technology consisting of these high yeilding variety seeds, along with chemical fertilisers in the irrigated areas of Punjab, Haryana, Western Uttar Pradesh, Andhra Pradesh and Gujarat.
- Assured water supply to the soil was a pre-requirement for the success of this package agricultural technology.
- The main disadvantage of Green Revolution was that it was only limited to the irrigated areas initially.
- This led to regional disparities in the agricultural development of India till 1970s after which the technology spread to Eastern and Central parts of the country.

Planning Commission

- Planning Commission focussed upon the problems of agriculture in rainfed areas in the 1980s. Agro-climatic planning was started in 1988 to promote balanced agricultural development in the country.
- It also emphasised upon diversification of agriculture and harnessing resources for the development of dairy farming, poultry, horticulture, livestock rearing and aquaculture.

Liberalisation Reforms

The policy of liberalisation and free market economy in 1990s greatly influenced the development of Indian agriculture.

Growth of Agricultural Output and Technology

There has been a significant increase in the agricultural output due to improvements in the agricultural technology in the last 50 years. It can be explained as follows

(i) Production and yield of many crops like rice, wheat has increased at a faster rate. Production of cotton, oilseeds and sugarcane has also increased.

(ii) Agricultural output has increased significantly due to expansion in irrigation. and other agricultural technology such as high yielding variety seeds, chemical fertilisers, pesticides and farm machinery.

(iii) Modern agricultural technology has diffused very fast in various areas of India. Consumption of chemical fertilisers has increased by 15 times since 1960s. The use of pesticides has significantly increased since the Green Revolution (in 1960s) as HYV seeds are vulnerable to pests and diseases.

Problems of Indian Agriculture

- For Indian agriculture, the nature of problem varies according to agro-ecological and historical experiences of its different regions.
- Most of the agricultural problems are region specific but there are some problems which are common and range from physical constraints to institutional hindrances.

These problems are explained below

- **Dependence on Erratic Monsoon** The crop production in majority of the cultivated land directly depends upon rainfall as irrigation covers only about 33% of the cultivated area in India.
- **Low Productivity** Labour productivity is also low in India in comparison to international level because of very high pressure on land resources.
- **Financial Constraints and Indebtedness** Crop failures and low returns from agriculture force the small and marginal farmers to fall in the trap of indebtedness. They have to take credit from various institutions and moneylenders to buy expensive input resources.
- **Lack of Land Reforms** Due to unequal distribution of land, the peasantry has been exploited for a long time. Among the three land revenue systems operational during British period i.e. Mahalwari. Ryotwari and Zamindari, the last one (Zamindari) was the most exploitative one.
- **Small Farm Size and Fragmented Land Holdings** There are a large number of marginal and small farmers in India. The average size of landholdings is shrinking further under increasing population pressure.

- **Lack of Commercialisation** Lack of commercialisation affects the Indian agriculture adversely. But in some irrigated areas, modernisation and commercialisation have taken place.
- **Vast Underemployment** There is huge unemployment in the agricultural sector in India, particularly in the un-irrigated regions. In these areas, there is seasonal unemployment ranging from 4 to 8 months.

Degradation of Cultivable Land

- Degradation of agricultural land occurs due to faulty strategies of irrigation and agricultural development. It also leads to declining soil fertility.
- Land degradation occurs due to following reasons
  (i) A large area of agricultural land is suffering from declining fertility due to alkalisation and salinisation of soils and waterlogging in the irrigated areas.
  (ii) Excessive use of chemical fertilisers and insecticides and pesticides has led to toxicity in the soil.
  (iii) Duration of fallow has reduced due to multiple cropping that does not allow the soil to regain its fertility.
  (iv) Due to human activities wind and water erosion also occurs in the rainfed areas in humid and semi-arid tropical climate.

Practice Questions

1. Which of these correctly defines barren and wastelands?
(a) Land which is left uncultivated for more than 5 years.
(b) Land which cannot be brought under cultivation with the use of current technology.
(c) Physical extent of a land on which crops are sown.
(d) Land under orchards and fruit trees

2. Which type of land-use is owned by the village Panchayat or the Government?
(a) Land put to non-agricultural uses
(b) Forests
(c) Area under permanent pastures and grazing lands.
(d) Culturable wasteland

3. Any land which is left fallow (uncultivated) for more than five years is included in which category of land use?
(a) Current fallow
(b) Culturable wasteland
(c) Net sown area
(d) Fallow other then current fallow

4. The Indian agriculture has been facing which of these problems?
(a) Low productivity
(b) Over dependence on monsoon
(c) Very small landholdings
(d) All of the above

5. The physical extent of land on which crops are sown and harvested is known as
(a) Current fallow
(b) Net sown area
(c) Culturable wasteland
(d) Fallow other than current fallow

6. Which one of the following is not a land-use category?
(a) Fallow land (b) Marginal land
(c) Net Area Sown (d) Cultivable land

7. Which one of the following is the main reason due to which share of forest has shown an increase in the last forty years?
(a) Extensive and efficient efforts of afforestation.
(b) Increase in community forest land.
(c) Increase in notified area allocated for forest growth.
(d) Better people's participation in managing forest area.

8. Which one of the following is the main form of degradation in irrigated areas?
(a) Gully erosion (b) Wind erosion
(c) Salinisation of soils (d) Siltation of land

9. Which one of the following crops is not cultivated under dryland farming?
(a) Ragi (b) Jowar
(c) Groundnut (d) Sugarcane

10. In which of the following group of countries of the world, HYVs of wheat and rice were developed?
(a) Japan and Australia
(b) USA and Japan
(c) Mexico and Philippines
(d) Mexico and Singapore

11. The increase of which land use category is a recent phenomenon due to use of culturable wasteland?
(a) Net sown area
(b) Current follow
(c) Forests
(d) Barren and wasteland

12. Which of these categories of land-use has registered an increase from 1950-51 to 2014-2015?
1. Land under forest
2. Net sown area
3. Land under pastures

Codes
(a) 1, 2 and 3 (b) 1 and 2
(c) 2 and 3 (d) 1 and 3

13. The cropping intensity can be calculated by

(a) $\frac{GCA \times NSA}{100}$ (b) $\frac{GCA}{100 \times NSA}$

(c) $\frac{GCA}{NSA} \times 100$ (d) $\frac{NSA}{GSA} \times 100$

14. Which of these is a Rabi crop in the Northern India?

1. Rice 2. Cotton
3. Wheat 4. Gram
5. Mustard

Codes

(a) 1 and 2 (b) 1, 2, 3, 4 and 5
(c) 2, 3 and 4 (d) 3, 4 and 5

15. More than 54% of total cropped area in India is occupied by

(a) Cereals (b) Pulses
(c) Oilseeds (d) Fibre crops

16. 'Aus', 'Aman' and 'Boro'are varieties of which crop?

(a) Wheat (b) Rice
(c) Pulses (d) Oilseeds

17. Wheat is mainly grown in India in which of these regions?

1. Punjab 2. Uttar Pradesh
3. Himachal Pradesh 4. Gujarat

Codes

(a) 2, 3 and 4 (b) 1, 2 and 3
(c) 1, 3 and 4 (d) 1 and 4

18. Which of these crops is grown in rainfed areas?

(a) Rice (b) Sugarcane
(c) Pulses (d) All of these

19. Tea is mainly grown in which of these regions in India?

1. Slopes of Nilgiris
2. Slopes of Cardamom Hills
3. Slopes of Darjeeling Hills

Codes

(a) 1, 2 and 3 (b) 2 and 3
(c) 1 and 3 (d) 1 and 2

20. Arrange the following states in sequence as per their position in the production of wheat.

1. Uttar Pradesh 2. Madhya Pradesh
3. Punjab 4. Haryana

Codes

(a) 1, 2, 3 and 4
(b) 3, 2, 4 and 1
(c) 4, 3, 2 and 1
(d) 2, 4, 3 and 1

21. Fallowing is a cultural practise adopted for giving rest to land so that ..... .

(a) land could be cultivated again
(b) land could regain its fertility
(c) land could be used for animal rearing
(d) land could be used to grow another crop

22. Which of the following regions of India is vulnerable to both floods and droughts?

(a) Odisha (b) Rajasthan
(c) Madhya Pradesh (d) Kerala

23. Cucumber is a crop of

(a) Rabi season (b) Kharif season
(c) Zaid season (d) both (a) and (b)

24. Which state is the leading producer of Gram?

(a) Madhya Pradesh
(b) Rajasthan
(c) Andhra Pradesh
(d) Gujarat

25. Match the following correctly and choose the correct option:

List I (Crop)	List II (Cultivating Region/State)
A. Rice	1. Maharashtra
B. Wheat	2. Malwa Plateau
C. Tur (Arhar)	3. West Bengal

Codes

	A	B	C		A	B	C
(a)	1	3	2	(b)	3	2	1
(c)	1	2	3	(d)	3	1	2

ANSWERS

1. (b)	2. (c)	3. (b)	4. (d)	5. (b)	6. (b)	7. (c)	8. (c)	9. (d)	10. (c)
11. (a)	12. (b)	13. (c)	14. (d)	15. (a)	16. (b)	17. (b)	18. (c)	19. (a)	20. (a)
21. (b)	22. (b)	23. (c)	24. (a)	25. (b)					

CHAPTER 06

Water Resources

- Water is cyclic resource with abundant supplies on the globe. More than 2/3rd (71%) of earth's surface is covered with water. However freshwater is only 3% of the total water.
- A very small portion of this freshwater is available for human use. The increasing shortage of water and desire to have a control over this resource is creating tensions and causing disputes among nations, states, communities and regions.

Water Resources of India

- India's total area is about 2.45% world's surface area, it has 4% of the world's water resources and about 16% of world's population.
- The total water availability from the annual precipitation is 4,000 cubic km, and from surface water and groundwater source is 1869 cubic km. But only 60% (1122 cubic km) from these sources is utilisable.

Surface Water Resources

- Rivers, lakes, ponds and tanks are the four main sources of surface water resources in India. About 10,360 rivers and tributaries flow in India. The mean annual flow in all the river basins in India is estimated to be 1,869 cubic km.
- But only about 32% (690 cubic km) of available surface water can be utilised due to topographical, hydrological and other constraints.
- Rainfall in India has high variation and is mainly concentrated in the monsoon season. Thus, water availability in the rivers is more during monsoon than other seasons.
- In India, **Ganga, Brahmaputra, Barak** and **Indus rivers** have large catchment area. Due to high precipitation in the catchment areas of these rivers, they have around 60% of total surface water resources.
- On the other hand in the South Indian rivers like Godavari, Krishna, Kaveri, etc. mean annual flow of water is less but their potential has been harnessed whereas it has not been harnessed yet in the Ganga and Brahmaputra basins.

Groundwater Resources

- Groundwater is the water present beneath earth's surface and the total replenishable groundwater resources in India are about 432 cubic km.
- The level of groundwater utilisation is relatively higher in the river basins of the North-Western regions and parts of South India.
- States having very high utilisation of groundwater are Punjab, Haryana, Rajasthan and Tamil Nadu. States having moderate utilisation of groundwater are Gujarat, Uttar Pradesh, Bihar, Tripura and Maharashtra.
- States having low utilisation of groundwater are Chhattisgarh, Odisha, Kerala, etc.

Lagoons and Backwaters

- India has a vast coastline and the coast is highly indented in some states of the country. States like Kerala, Odisha and West Bengal have vast surface water resources in these lagoons and lakes.
- Water is generally brackish in these water bodies, it is used for fishing and irrigating certain varieties of paddy crops, coconut etc.

Water Demand and Utilisation

- India's present water demand is dominated by irrigational needs.
- The development of irrigation to increase agricultural production has been given high priority in the Five-Year Plans.
- Various multi-purpose projects such as Bhakra Nangal, Hirakud, Damodar Valley, Indira Gandhi Canal Project have been constructed.
- The share of agricultural sector in total water utilisation is much higher as compared to other sectors. This sector accounts for 89% of surface water utilisation and 92% of groundwater utilisation.

- On the other hand, share of industrial sector is limited to 2% of surface water utilisation and 5% of ground water utilisation whereas, the share of domestic sector is higher in surface water utilisation (9%) as compared to groundwater.

Demand of Water for Irrigation

In the agriculture sector, water is mainly used for irrigation. High demand of water for irrigation is much higher due to the following reasons

- Spatio-temporal variability of rainfall in the country is the biggest reason behind the demand of water for irrigations.
- There are water deficient areas in the country that are drought prone due to inadequate rainfall. These include North-Western India and Deccan Plateau.
- Both winter and summer seasons are more or less dry in many parts of the country which makes agriculture possible with the help of only irrigation.
- Even in the areas where there is high rainfall, breaks in the monsoon and its failure proves to be harmful for agriculture. e.g. Bihar, West Bengal.
- Water needs of certain crops like rice, sugarcane, jute etc. is very high which requires irrigation.
- Irrigation is the reason due to which Green Revolution strategy has largely been successful in Punjab, Haryana and Western UP. More than 85% of their net sown area is under irrigation.

Overuse of Water Resources and Related Issues

- States such as Punjab, Haryana and Uttar Pradesh utilise a large proportion of their groundwater resources for irrigation as wheat and rice are grown mainly with the help of irrigation in these states.
- Out of the net irrigated areas, 76.1% in Punjab and 51.3% in Haryana are irrigated through wells and tubewells. Due to over use of groundwater resources, it has resulted in its depletion in these states.

Emerging Water Problems

- The available water resources are getting polluted with industrial, agricultural and domestic effluents, which limits the availability of usable water resources.
- The per-capita availability of water is also reducing day by day due to increasing population.

Deterioration in Water Quality

- Due to the presence of foreign matter like micro-organisms, chemicals and industrial waste, water is getting polluted. It seriously affects the quality of water (purity of water) and makes it unfit for human use.
- When toxic substances enters lakes, streams, rivers, oceans and water bodies, they get dissolved or lie suspended in water. This pollutes water and affects aquatic systems.
- These pollutants also seep down and pollute the groundwater.
- It also leads to pollution of rivers in India. e.g. Ganga and Yamuna are highly polluted rivers.

Water Conservation and Management

- Declining availability of freshwater and increasing demand has made it mandatory to conserve and effectively manage water resources for **sustainable development**.
- Due to high cost of desalinisation the availability of water from the oceans is considered as negligible.
- There is need to encourage **watershed development, rainwater harvesting, water recycling** and reuse and **conjunctive use** (storing surface water in groundwater basins) of water for long run sustaining water supply.

Prevention of Water Pollution

- Available water resources are degrading at a faster rate. It is seen that hilly areas have less dense population and thus have high quality of water in their rivers.
- Whereas, plains have highly dense population, thus, have low quality of water in rivers, as in the plains water is intensively used for irrigation, domestic and industrial purposes.
- Water pollution takes place through the drains carrying agricultural waste (fertilisers and insecticides), domestic waste (solid and liquid municipal waste) and industrial wastes.
- The **Central Pollution Control Board** (CPCB) in collaboration with the **State Pollution Control Board** (SPCB) has been monitoring water quality of national aquatic resources at 507 stations.
- Groundwater is also polluted because of high concentration of heavy toxic (poisonous) metals, flouride nitrates at different parts of the country.

Legislative Provisions to Prevent Water Pollution

- Government has taken various steps to minimise river and water pollution e.g. the **Water (Prevention and Control of Pollution) Act of 1974**, and **Environment Protection Act of 1986**.
- **The Water Cess Act of 1977** was to prevent pollution but it was also less effective. So there is an urgent need to create awareness in public about the importance of water and impacts of water pollution.

Recycle and Reuse of Water

- Recycle and reuse is simple and best way to conserve freshwater and make it available to all.
- Lesser quality water and reclaimed waste water can be used for cooling by the industries. It can used for fire fighting to reduce their costs.

Watershed Management

- Watershed management basically refers to efficient management and conservation of surface and groundwater resources. It includes
  - Prevention of surface runoff.
  - Storage and recharge of groundwater by different methods such as percolation tanks, recharge wells, etc.
- There are various watershed development and management programmes started by both Central and State Government at national and state level in India some of these are implemented by various NGOs.
- These programmes are :
  - ***Haryali*** is sponsored by the Central Government, while Gram Panchayats of different villages.
  - ***Neeru-Meeru*** (Water and You) Programme in Andhra Pradesh and ***Arvary Pani Sansad*** (in Alwar Rajasthan) are examples of state initiated watershed development programmes.
- Tamil Nadu is the only state which has made the construction of water harvesting structures compulsory in the houses.

Impact of Watershed Development

Watershed development impacted every sector of village in following ways:

- A youth group called Tarun Mandal was formed. The group worked to ban the dowry system, caste discrimination and untouchability.
- A ₹ 22 lakh school building was constructed using only the resources of the villages.
- All election to local bodies began to beheld on the basis of consensus.
- A system of Nyaya Panchayats (informal courts) were also setup.
- A new system of sharing labour grew out this infusion of pride and voluntary spirit.
- Landless labouress also gained employment.

Rainwater Harvesting

- It is a method to capture and store rainwater for various uses. It is a low cost and eco-friendly technique for preserving every drop of water by guiding the rainwater to borewell, pits and wells. It helps in recharging groundwater aquifers.
- There are various benefits of rainwater harvesting, which are as follows:
  - It increases water availability.
  - It checks the declining groundwater level.
  - It improves the quality of groundwater by dilution of pollutants like fluoride and nitrates.
  - It prevents soil erosion and flooding.
  - It is used to arrest salt water intrusion in coastal areas.
- In traditional rainwater harvesting techniques, practised in villages, water is usually collected in any surface water body i.e. lakes, ponds, irrigation tanks, etc ***Kund*** or ***Tanka*** which is a covered storage underground tank is widely used in Rajasthan for storing the rainwater.

Other Benefits of Rainwater Harvesting

- Rainwater harvesting decreases the dependence on groundwater for domestic use. This will reduce the demand supply gap.
- It would lead to rise in groundwater table that will reduce the cost of pumping the groundwater.
- Urban areas can be benefitted by the use of rainwater havesting systems as many urban cities are undergoing increasing demand of water for their rising populations.

Other Methods to Solve Water Scarcity

Apart from the above mentioned techniques, the following measures can be taken up for solving water scarcity:

- Desalinisation of water in coastal areas and brackish water in arid and semi arid areas.
- Transfer of water from water surplus areas to water deficit areas through interlinking of rivers.

National Water Policy, 2002

The National Water Policy, 2002 stipulates water allocation priorities in the following order–drinking water, irrigation hydro-power, navigation, industrial and other uses. The policy gives progressive new approaches to water management. Its key features are:

- Irrigation and multi-purpose projects should include drinking water component, wherever there is no source of drinking water.
- Providing drinking water to humans and animals should be the first priority.
- Measures should be taken to limit and regulate the exploitation of groundwater.
- Both surface and groundwater should be regularly monitored for quality. Programmes should be undertaken to improve water quality.

Practice Questions

1. Irrigation in certain parts of the country is neccessary due to which of the following reasons?
   (a) Rainfall deficiency
   (b) Dry winters and summers
   (c) Breaks in monsoon
   (d) All of the above

2. Which of the following figures in cubic kilometres correctly shows the total annual precipitation in India?
   (a) 2,000 (b) 3,000
   (c) 4,000 (d) 5,000

3. Ganga, Brahmaputra and Barak rivers account for ..... % of total surface water resources of India.
   (a) 68 (b) 75
   (c) 12 (d) 60

4. Which one of the following rivers has the highest replenishable groundwater resource in the country?
   (a) The Indus
   (b) The Brahmaputra
   (c) The Ganga
   (d) The Godavari

5. In which of the following states lagoons and backwater sources of water are not found?
   (a) Uttar Pradesh
   (b) Kerala
   (c) Odisha
   (d) West Bengal

6. Which of the following sector accounts for highest percentage of water utilisation?
   (a) Domestic (b) Industrial
   (c) Agricultural (d) None of these

7. What percentage of worlds water resources are present in India?
   (a) 2% (b) 3%
   (c) 4% (d) 5%

8. Which one of the following types describe water as a resource?
   (a) Abiotic resource
   (b) Non-renewable resource
   (c) Biotic resource
   (d) Cyclic resource

9. Which one of the following South Indian states has the highest groundwater utilisation (in per cent) of its total groundwater potential?
   (a) Tamil Nadu (b) Karnataka
   (c) Andhra Pradesh (d) Kerala

10. The highest proportion of the total water used in the country is in which one of the following sectors?
    (a) Irrigation (b) Industries
    (c) Domestic use (d) None of the above

11. Which of the following statement/s is/are true?
    1. India accounts for 4% of the world's water resources.
    2. Agriculture accounts for 92% of groundwater utilistion in India.
    3. Over use of groundwater resources has led to depletion of groundwater in certain states.

    Codes
    (a) 1 and 2 (b) 1, 2 and 3
    (c) 2 and 3 (d) 1 and 3

12. The Neeru-Meeru water harvesting programme was launched in ..... .
    (a) Rajasthan
    (b) Tamil Nadu
    (c) Andhra Pradesh
    (d) Haryana

13. Which of these options correctly defines watershed management?
    (a) A method to capture and store rainwater.
    (b) Recycling and reuse of water.
    (c) Efficient management and conservation of water resources.
    (d) Awareness generation programmes.

14. Kund or tanka, a covered underground tank is constructed for rainwater harvesting mainly in which of these states?
    (a) Haryana (b) Punjab
    (c) Rajasthan (d) Uttar Pradesh

15. National Water Policy was formulated in which year?
    (a) 2000 (b) 2002
    (c) 2007 (d) 2009

16. Which of the following states have very low groundwater utilisation in India?
    1. Chhattisgarh 2. Punjab
    3. Kerala 4. Tamil Nadu

    Codes
    (a) 2, 3 and 4
    (b) 1, 2, 3 and 4
    (c) 1 and 3
    (d) 2 and 4

17. Which of the following statements is/are true?
    1. Water quality is relatively better in upper hilly terrains.
    2. The concentration of pollutants in the rivers remain high during the summer season.
    3. Organic and bacterial contaminants are the main source of pollution in the rivers.

    Codes
    (a) 1 and 2 (b) 2 and 3
    (c) 1, 2 and 3 (d) 1 and 3

18. Which of the following are the main objectives of the Jal Kranti Abhiyan?

1. Water conservation and artificial recharge.
2. Creating mass awareness.
3. Reducing groundwater pollution.

Codes

(a) 1 and 2 (b) 1, 2 and 3 (c) 2 and 3 (d) 1 and 3

19. Which of these states are correctly arranged in terms of groundwater utilisation (high to low)?

(a) Kerala, Punjab, Uttar Pradesh
(b) Punjab, Uttar Pradesh, Kerala
(c) Kerala, Uttar Pradesh, Punjab
(d) Punjab, Kerala, Uttar Pradesh

20. What percentage of total water resources is fresh water?

(a) 3% (b) 5% (c) 2% (d) 1%

21. Which of the following places do not have more than 85% of net sown area under irrigation?

(a) Punjab (b) Haryana
(c) Western UP (d) Bihar

22. In which year, the Water Cess Act of 1977 was legislated?

(a) 1976 (b) 1977
(c) 1978 (d) 1984

23. The Central Pollution Control Board [CPCB] was established in the year

(a) 1970 (b) 1972
(c) 1974 (d) 1976

24. Match the following correctly and choose the correct option :

	List I (Sector)		List II (Water Utilisation)
A.	Domestic	1.	89%
B.	Agriculture	2.	2%
C.	Industrial	3.	92%

Codes

	A	B	C		A	B	C
(a)	3	1	2	(b)	2	1	3
(c)	1	2	3	(d)	3	2	1

25. Match the following correctly and choose the correct option :

	List I (Act/Policy)		List II (Year)
A.	Water (Prevention and control pollution) Act	1.	1986
B.	Environment Protection Act	2.	1974
C.	The Water Cess Act	3.	2002
D.	National Water Policy	3.	1977

Codes

	A	B	C	D		A	B	C	D
(a)	3	4	1	2	(b)	2	1	4	3
(c)	1	4	2	3	(d)	3	1	4	2

ANSWERS

1. (d)	2. (c)	3. (d)	4. (c)	5. (a)	6. (c)	7. (c)	8. (d)	9. (a)	10. (a)
11. (b)	12. (c)	13. (c)	14. (c)	15. (b)	16. (c)	17. (c)	18. (b)	19. (b)	20. (a)
21. (d)	22. (b)	23. (c)	24. (a)	25. (b)					

CHAPTER 07

Mineral and Energy Resources

India is endowed with a rich variety of mineral resource due to its varied geological structure. The mineral resources provide the country with the essential base for industrial development.

Minerals

A mineral is a natural substance of organic or inorganic origin with specific chemical and physical properties. Minerals are important and provide raw material to different industries and thus, support industrial development of a country.

Characteristics of Minerals

- Distribution of minerals over the earth's surface is uneven.
- There is inverse relationship between the quantity and quality of minerals i.e. good quality minerals are less in quantity and low quality minerals are found in large quantities.
- Minerals are exhaustible, once used they cannot be replenished immediately at the time of need. So, minerals have to be conserved and used judiciously.

Types of Minerals

- **Metallic Minerals** These minerals are rich in metals. For example, copper, iron-ore, bauxite, gold, manganese, etc.

  These are of two types

  (i) **Ferrous Minerals** These minerals are rich in iron content and are an important source of iron. For example, iron-ore.

  (ii) **Non-ferrous Minerals** These minerals do not have iron content and have high proportion of other metals. For example, copper, bauxite, etc.
- **Non-Metallic Minerals** These minerals do not have metallic contents and are classified into two groups

  (i) **Organic Minerals** These are made up of organic matter of buried animals and plants. For example, fossil/mineral fuels like coal, petroleum, etc.

  (ii) **Inorganic Minerals** These are inorganic in nature of origin. For example, mica, limestone, graphite, etc.

Distribution of Minerals in India

- Most of the metallic minerals in India occur in the peninsular plateau region in the old crystalline rocks. River valleys of Damodar, Sone, Mahanadi and Godavari have over 97% of coal reserves in India.
- Sedimentary basins of Assam, Gujarat and offshore region in the Arabian sea (Mumbai high) are famous for their crude petroleum reserves. New reserves of petroleum have been found in the basins of Krishna-Godavari and Kaveri basins.
- Most of the major mineral resources occur to the East of a line joining Mangaluru and Kanpur. Minerals are generally concentrated in three broad belts in India which

The North-Eastern Plateau Region

- This belt includes the regions of Chhotanagpur (Jharkhand), Odisha plateau, West Bengal and parts of Chhattisgarh.
- Important minerals here are iron-ore, coal, manganese, bauxite and mica.

The South-Western Plateau Region

- This belt extends over Karnataka, Goa and contiguous uplands shared with Tamil Nadu and Kerala. Ferrous metals and bauxite are concentrated here along with high grade iron ore, manganese and limestone.
- The only region of coal deposits in this belt is **Neyveli (Tamil Nadu), which is famous for lignite coal. Deposits of monazite and thorium and bauxite clay are found in Kerala and iron-ore deposits are found in Goa.**

The North- Western Region

- Minerals of this belt are associated with Dharwar system of rocks which are found in the Aravali range of Rajasthan and parts of Gujarat. Major minerals are copper and zinc.
- **Rajasthan** is rich in building stones i.e. sandstones, granite, marble, gypsum and fuller's deposits.
- Cement industries are also concentrated here due to availability of dolomite and limestone, which are the raw materials of these industries. Gujarat is rich in petroleum deposits and salt is produced in Gujarat and Rajasthan.

Other Areas/Regions

Both Eastern and Western parts of the Himalayan belt have minerals like copper, lead, zinc, cobalt and tungsten. Assam valley has mineral oil deposits. Besides this, oil resources are also found in offshore area near Mumbai coast (Mumbai high).

Metallic Minerals

Spatial pattern of some of the important metallic minerals are

Ferrous Minerals

India is well placed in respect of ferrous minerals both in reserves and production. Ferrous minerals like iron-ore, manganese, chromite, etc. provide a strong base for development of **metallurgical industries**.

Iron-Ore

India has largest iron ore reserves in Asia. Two superior quality iron-ore found in India are **haematite** and **magnetite.** Iron-ore mines of India are found near the coal fields of North-Eastern plateau region. Only a few Indian states contain about 95% of total iron ore reserves in India. These states are

- **Odisha** In Odisha, iron ore occurs in a series of hill ranges in Sundergarh, Mayurbhanj and Jhar. Gurumahisani, Sulaipet, Badampahar (Mayurbhanj), Kiruburu (Kendujhar) and Bonai (Sundergarh) are important mines.
- **Jharkhand and Chhattisgarh** Jharkhand has some of the oldest mines in India. Important iron-ore mines are Noamundi and Gua in Poorbi and Paschimi Singhbhum district. The belt further extends to Durg, Dantewara, and Bailadila in Chhattisgarh. Important mines are Dalli and Rajhara in Durg.
- **Karnataka** Iron ore deposits occur in Sandur-Hospet area of Ballari district, Baba Budan hills and Kudremukh in Chikkmagaluru, parts of Shivamogga, Chitradurg and Tumakuru districts.
- **Maharashtra** Important iron ore deposits are located in Chandrapur, Bhandara and Ratnagiri districts.
- **Andhra Pradesh** Important areas where iron ore is found are Kurnool, Cuddapah and Anantapur districts.
- **Telangana** Important districts where iron ore is found include Karimnagar and Warangal.
- **Others** These include Salem and Nilgiri district of Tamil Nadu and other similar mining regions. Goa has also emerged as an important iron-ore producer.

Manganese

- It is an important raw material which is used in iron and steel industry for smelting of iron-ore and in the manufacturing of ferro alloys. Important states are
- **Odisha** It is the leading manganese producer of India. Important mines are located in the districts of Bonai, Kendujhar, Sundergarh, Gangpur, Kalahandi, Bolangir and Koraput.
- **Karnataka** In Karnataka, mines are located in Dharwar, Ballari, Belgaum (Belagavi), North Canara, Chikkmagaluru, Shivamogga, Chitradurg and Tumakuru.
- **Maharashtra** In Maharashtra, manganese is mainly mined in Nagpur, Bhandara and Ratnagiri districts. The main disadvantage of these mines is that they are located far from steel plants.
- **Madhya Pradesh** In Madhya Pradesh, manganese is found in a belt that extends through Balaghat-Chhindwara- Nimar-Mandla Jhabua districts.
- **Others** Other minor producers of manganese are Telangana, Goa and Jharkhand.

Non-Ferrous Minerals

India is poorly endowed with non-ferrous metallic minerals except bauxite.

Bauxite

It is the ore which is used in manufacturing of aluminium. It is found in tertiary deposits and is associated with laterite rocks found mostly in the plateau or hilly regions of peninsular India and also in the coastal areas. Important states are

- **Odisha** It is the largest producer of bauxite and the important producing areas in the state are Kalahandi and Sambalpur. Bolangir and Koraput are the other two areas where production is increasing.
- **Jharkhand** The patlands of Lohardaga in Jharkhand have rich deposits.
- **Gujarat** Bhavanagar and Jamnagar have major deposits of bauxite.
- **Chhattisgarh** Amarkantak plateau region has large deposits of bauxite.
- **Madhya Pradesh** Katni-Jabalpur area and Balaghat have important deposits of bauxite.

- **Maharashtra** Kolaba, Thane, Ratnagiri, Satara, Pune and Kolhapur are important producers of bauxite.
- **Others** Tamil Nadu, Karnataka and Goa are the minor producers of Bauxite.

Copper

It is alloyable, malleable (can be converted into thin sheets), ductile (can be drawn into wire) and an indispensable (essential) metal. It is used in electrical industry for making wires, electric motors, transformers and generators. It is mixed with gold to provide strength to jewellery. Important states are

- **Jharkhand** Copper deposits in Singbhum district.
- **Madhya Pradesh** Copper deposits in Balaghat district.
- **Rajasthan** Copper deposits in Jhunjhunu and Alwar districts.

Non-metallic Minerals

Mica is the most important non-metallic mineral produced in India. Apart from mica, some other non-metallic mineral found in India are limestone, dolomite and phosphate. They are found in less quantities and used for local consumption.

Mica

- It is mainly used in the electrical/electronic industries. It can be split into very thin, strong and flexible sheets. Important states are
- **Jharkhand** Mica is produced in a belt extending for 150 km in length and 22 km in width in the lower Hazaribagh plateau. This range produces high quality of mica.
- **Andhra Pradesh** Nellore district is important producer of mica. It produces best quality mica.
- **Rajasthan** A 320 km long belt from Jaipur to Bhilwara and around Udaipur produces mica.
- **Karnataka** Mysore and Hasan districts are important producer of mica.
- **Others** Coimbatore, Tiruchirapalli, Madurai and Kanniyakumari (Tamil Nadu), Ratnagiri (Maharashtra), Alleppey (Kerala), Purulia and Bankura (West Bengal) are also known for mica deposits.

Salt

It is a mineral composed of Sodium Chloride (NaCl). Salt is used in many industrial processes including the manufacture of polyvinyl chloride, plastics, paper pulp, etc. Rajasthan and Gujarat have rich sources of salt.

Energy Resources

Energy resources are categorised into two i.e. conventional and non-conventional.

Conventional Sources of Energy

- These sources of energy are being used since a long time. These resources cannot be renewed or replenished.
- They are exhaustible in nature. For example, all **fossil fuels** like coal, petroleum and natural gas.

Coal

It is used in generation of thermal power and smelting of iron-ore. In India, coal is found in two rock sequences i.e **Gondwana deposits** and **Tertiary coal deposits.**

Gondwana Coal Fields

- Most important Gondwana coal fields are located in the Damodar valley. It lies in West Bengal-Jharkhand region. Jharia (largest coal field), Raniganj (second largest field), Bokaro, Giridih, Karanpura are important Gondwana coal fields. Other river valleys associated with coal are Godavari, Mahanadi and Sone.
- The important coal mining centres are
  - **Madhya Pradesh** Singrauli
  - **Chhattisgarh** Korba
  - **Odisha** Talcher and Rampur
  - **Maharashtra** Chanda-Wardhe, Kamptee and Bander
  - **Telangana** Singareni
  - **Andhra Pradesh** Pandur

Tertiary Coal Fields

Important states of having tertiary coal fields are

- **Meghalaya** Darangiri, Cherrapunji, Mewlong and Langrin.
- **Assam** Makum, Jaipur and Nazira in upper Assam.
- **Arunachal Pradesh** Namchik-Namphuk
- **Jammu and Kashmir** Kalakot
- Besides, the brown coal or lignite coal occurs in the coastal areas of Tamil Nadu, Puducherry, Gujarat and also in Jammu and Kashmir.

Petroleum

- It is used as an essential source of energy in all internal combustion engines of automobiles, railways and aircrafts.
- It is also used as a raw material in petrochemical industries to produce fertiliser, synthetic rubber, synthetic fibre, medicines, vaseline, lubricants, wax soap and cosmetics, etc.

- It is also called **liquid gold** due to its scarcity and different uses. Crude oil is found in sedimentary rocks of tertiary age.
- It consists of hydrocarbons of liquid and gaseous states varying in chemical composition, colour and specific gravity.
- Before Independence, Digboi was the only crude oil producing region in India, but after Independence in 1956, **Oil and Natural Gas Commission** was set up and the scenario changed after it.

  Some important oil producing regions are

  Assam Digboi, Naharkatiya and Moran.

  Gujarat Ankaleshwar, Kalol, Mehsana, Nawagam, Kosamba and Lunej.

  Mumbai High It is an offshore oil producing region, located 160 km off Mumbai in the Arabian Sea. It was discovered in 1973 and production started in 1976.

  Krishna, Godavari and Kaveri Basin Oil and natural gas have been found in these river basins on the East coast of India.
- There are two types of oil refineries in India
  (i) **Field Based Refineries** Digboi is an example of field based refinery.
  (ii) **Market Based Refineries** Barauni is an example of market based refinery.

Natural Gas

- It occurs along with oil as well as separately in gas reserves in India.
- These gas reserves are located along the Eastern coast in Tamil Nadu, Odisha, Andhra Pradesh as well as Tripura, Rajasthan, Gujarat and Maharashtra. Gujarat and Maharashtra have off-shore wells of natural gas.
- The **Gas Authority of India Limited** was set up in 1984 as a public undertaking to transport and market natural gas.

Non-Conventional Energy Sources

- These sources are renewable in nature. These resources are more equitably distributed and will provide sustained and cheaper energy after the initial cost is taken care of.
- These sources include solar, wind, hydro-geothermal and biomass. Nuclear energy is also a clean source of energy.

Nuclear Energy Sources

It has emerged as a viable source in recent times. Uranium and thorium are main minerals that are used to generate nuclear energy.

Uranium Deposits in India

- It is found in Dharwar rock system. Important regions are
  - **Jharkhand** Along the Singbhum Copper belt
  - **Rajasthan** Udaipur, Alwar and Jhunjhunu districts
  - **Chhattisgarh** Durg district
  - **Maharashtra** Bhandara district
  - **Himachal Pradesh** Kullu district

Thorium Deposits in India

- It is mainly obtained from monazite and ilmenite in the beach sands along the coasts of Kerala and Tamil Nadu. In India, it is found in very few places. The states which have world's richest monazite deposits are
  - **Kerala** Palakkad and Kollam districts
  - **Andhra Pradesh** Near Visakhapatnam
  - **Odisha** Mahanadi river delta
- In India, although Atomic Energy Commission was set up in 1948 but development of nuclear energy was started after the establishment of Atomic Energy Institute at Trombay in 1954. It was renamed as the **Bhabha Atomic Research Centre** in 1967.
- The important nuclear power projects are Tarapur (Maharashtra), Rawatbhata near Kota (Rajasthan), Kalapakkam (Tamil Nadu), Narora (Uttar Pradesh), Kaiga (Karnataka) and Kakrapara (Gujarat).

Solar Energy

- Sun rays trapped in photovoltaic cells can be converted into energy, known as solar energy. Solar energy can be trapped by two methods i.e. **Photovoltaics** and **Solar Thermal Technology**.
- It is generally used in appliances like heaters, crop dryers, cookers, etc. Gujarat, Rajasthan in the Western part of India have higher potential for the development of solar energy.

Wind Energy

- It is a non-polluting and renewable source of energy. Kinetic energy of wind can be directly converted into electric energy through turbine mechanism.
- Besides this, production of electricity can also be done by local winds, land and sea breezes. Rajasthan, Gujarat, Maharashtra and Karnataka have favourable conditions and higher potential for the development of wind energy.

Tidal and Wave Energy

- It refers to energy generated by tapping the infinite energy of ocean currents.
- **Many efforts for the efficient use of oceanic tides and waves were made since 17th and 18th century. Large tidal waves are known to occur along the West coast of India.**

Geothermal Energy

- It refers to energy generated by the tremendous heat of magma, that comes over the earth's surface from the interior of earth. This heat energy can be converted into electrical energy by tapping it.
- Apart from this, hot water from the geyser wells is also used to generate geothermal energy.
- In Manikaran (Himachal Pradesh), a geothermal energy plant has been commissioned.
- The first successful attempt to tap the underground heat was made in the city of **Boise**, Idaho (USA) in the year 1890.

Biogas

- It refers to energy derived from biological products which includes agricultural, municipal, industrial wastes, etc.
- Bio-energy can be converted into electrical energy, heat energy or gas for cooking food.
- It can contribute in improving economic life of rural people in developing countries, help in facing and reducing environmental problems like pollution, solid waste management, enhancing self-reliance and reducing pressure on fuel wood.
- A project in **Okhla** (Delhi) is an example that generates energy from municipal waste.

Conservation of Mineral Resources

The **sustainable development** requires integrating economic development along with addressing environmental concerns. Some methods through which we can conserve mineral resources are

- Adoption of **renewable resources** in place of exhaustible resources like solar power, wind, geothermal energy which can save our non-renewable resources for the future generation.
- Use of recycled scrap metals like copper, lead and zinc should be encouraged as India has very less reserves of these mineral resources.
- Use of substitutes for scarce metals may also reduce their consumption.
- Export of strategic and scarce minerals must be reduced, so that the existing reserve may be used for a longer period.

Practice Questions

1. Which of the following is a metallic mineral?
(a) Coal (b) Bauxite (c) Mica (d) Graphite

2. Noamundi and Gua iron ore mines are located in which state?
(a) Haryana (b) Jharkhand
(c) Odisha (d) Karnataka

3. Balaghat-Chhindwara-Mimar-Mandla-Jhabua belt is famous for the mining of
(a) iron ore (b) copper
(c) manganese (d) mica

4. Which of these is a market based oil refinery?
(a) Digboi (b) Koyali
(c) Barauni (d) Tatipaka

5. Uranium deposits are found in which rock system in India?
(a) Cuddapah (b) Gondwana
(c) Dharwar (d) All of these

6. Which of these states have high potential for development of solar energy?
(a) Gujarat (b) Assam
(c) Arunachal Pradesh (d) Bihar

7. In which one of the following states are the major oil fields located?
(a) Assam (b) Bihar
(c) Rajasthan (d) Tamil Nadu

8. At which one of the following places was the first atomic power station started?
(a) Kalpakkam (b) Narora
(c) Rana Pratap Sagar (d) Tarapur

9. Which one of the following minerals is known as brown diamond?
(a) Iron (b) Lignite
(c) Manganese (d) Mica

10. Which of the following is non-renewable source of energy?
(a) Hydel (b) Solar
(c) Thermal (d) Wind Power

11. Which of the following oil refineries are correctly arranged from North to South?
(a) Visakhapatnam, Chennai, Nagapattinam, Haldia
(b) Haldia, Chennai, Nagapattinam, Visakhapatnam
(c) Haldia, Visakhapatnam, Chennai, Nagapattinam
(d) Visakhapatnam, Haldia, Chennai, Nagapattinam

12. The North-Eastern plateau region consists of mainly which of the following minerals?
1. Iron-ore 2. Coal
3. Zinc 4. Granite
Codes
(a) 1 and 2 (b) 2 and 3
(c) 3 and 4 (d) 1 and 3

13. Manganese is mainly used in which of these activities?

1. Smelting of iron ore
2. Producing ferro alloys
3. Manufacturing aluminium

Codes

(a) 1, 2 and 3 (b) 2 and 3
(c) 1 and 2 (d) 1 and 3

14. High quality mica is produced in lower ..... plateau in Jharkhand.

(a) Malwa (b) Hazaribagh
(c) Chhotanagpur (d) Bastar

15. The largest coal field containing Gondwana coal in India is ..... .

(a) Raniganj (b) Singrauli
(c) Bokaro (d) Jharia

16. Gondwana coal fields are located mainly in the ..... valley.

(a) Ganga (b) Damodar
(c) Chambal (d) Narmada

17. The Oil and Natural Gas Commission was set up in ..... .

(a) 1981 (b) 1947 (c) 1956 (d) 1921

18. Match the following pairs and choose the correct option.

List I (State)	List II (Copper Producing Region)
1. Jharkhand	A. Agnigundala
2. Madhya Pradesh	B. Singhbhum
3. Rajasthan	C. Jhunjhunu
4. Andhra Pradesh	D. Balaghat

Codes

	A	B	C	D		A	B	C	D
(a)	1	2	4	3	(b)	1	2	3	4
(c)	4	1	3	2	(d)	4	1	2	3

19. Match the following pairs and choose the correct option.

List I (Coal Mines)	List II (State)
1. Singrauli	A. West Bengal
2. Talcher	B. Madhya Pradesh
3. Raniganj	C. Jharkhand
4. Jharia	D. Odisha

Codes

	A	B	C	D		A	B	C	D
(a)	1	2	3	4	(b)	1	2	4	3
(c)	3	1	4	2	(d)	4	1	3	2

20. Thorium is obtained from which of the following mineral?

(a) Monazite (b) Dolomite
(c) Cuperite (d) Calcite

21. Mayurbhanj Hills are a source of which of the following minerals?

(a) Uranium (b) Iron ore
(c) Petroleum (d) Manganese

22. Over 97% of Coal reserves occur in the valleys of Damodar, Sone, Godavari and.....

(a) Krishna (b) Cauvery
(c) Mahanadi (d) Narmada

23. Coal and petroleum are examples of

(a) Renewable minerals
(b) Inorganic minerals
(c) In exhaustible minerals
(d) Fuel minerals

24. Which of the following are sources of Non-convectional energy?

(a) Solar (b) Wind
(c) Bio-energy (d) All of these

25. Manganese minerals are found in which of the following rocks?

(a) Dharwar rocks (b) Gondwana rocks
(c) Cuddapah rocks (d) Vindhyan rocks

ANSWERS

1. (b)	2. (b)	3. (c)	4. (c)	5. (c)	6. (a)	7. (a)	8. (d)	9. (b)	10. (c)
11. (c)	12. (a)	13. (c)	14. (b)	15. (d)	16. (b)	17. (c)	18. (c)	19. (c)	20. (a)
21. (b)	22. (c)	23. (d)	24. (d)	25. (a)					

- The raw materials used in this industry i.e. iron-ore, coking coal, limestone, dolomite, manganese and fire clay are found in Chhattisgarh, Northern Odisha, Jharkhand and Western West Bengal.
- This region is extremely rich in high grade iron ore, good quality coking coal and other raw materials.

Integrated Steel Plants

TISCO

- The **Tata Iron and Steel Company** (TISCO) lies close to Mumbai- Kolkata railway line and about 240 km away from Kolkata. This plant gets its raw materials from different source regions like
  - Water supply from Subarnarekha and Kharkai rivers.
  - Iron-ore from Noamundi and Badam Pahar.
  - Coal from Joda mines in Odisha.
  - Coking coal from coal fields of Jharia and West Bokaro coalfields.

IISCO

- The first factory of the **Indian Iron and Steel Company (IISCO)** was set up at Hirapur and later on another at Kulti.
- In 1937, the Steel Corporation of Bengal was established in association with IISCO and set up another unit at Burnpur (West Bengal).
- Later in 1972-73, the Government took over the IISCO plants because of a considerable fall in steel production. All the plants are located along the Kolkata- Asansol railway line.

VISL

- The third integrated steel plant, the Visvesvaraiya Iron and Steel Works Ltd. (VISL) was initially called the Mysore Iron and Steel Works.
- It is located at Bhadravati city of Shivamogga district of Karnataka.
- It gets iron-ore from Kemangundi in the Bababudan hills, limestone and manganese from the local area and water supply from Bhadravati river.

Three New Steel Plants started During Second Five Year Plan

During the Second Five Year Plan (1956-61), three new integrated steel plants were set up with foreign collaboration i.e. Rourkela in Odisha, Bhilai in Chhattisgarh and Durgapur in West Bengal.

- **Rourkela Steel Plant** This plant was established in 1959 in the Sundargarh district of Odisha in collaboration with Germany.
- **Bhilai Steel Plant** It was set up with Russian collaboration in Durg district of Chhattisgarh and started production in 1959. This plant is located on the Kolkata-Mumbai railway route.
- **Durgapur Steel Plant** It was set up in collaboration with the Government of United Kingdom in West Bengal and started production in 1962. It lies on the main Kolkata-Delhi railway route.
- **Bokaro Steel Plant** It was set up in 1964 with Russian collaboration at Bokaro. It was setup on the principle of transport cost minimisation by creating Bokaro- Rourkela combine by complementarity between the two plants.

Other Steel Plants

- In the Fourth Five Year Plan, three other steel plants were set up away from the main raw material sources, namely
  - **The Vizag Steel Plant** in Visakhapatnam in Andhra Pradesh is the first port based plant which started operating in 1992.
  - **The Vijaynagar Steel Plant** at Hosapete in Karnataka was developed using indigenous technology and uses local iron-ore and limestone.
  - **The Salem Steel Plant** in Tamil Nadu was commissioned in 1982.
- Apart from these major steel plants, there are more than 206 units located in different parts of the country. Most of these use scrap iron as their main raw material, and process it in electric furnances.

The Cotton Textile Industry

- This is one of the traditional industries of India. In the ancient and medieval times, it was only a cottage industry.
- India was famous worldwide for the production of **muslin**, a very fine variety of cotton cloth, and calicos, chintz and other different varieties of fine cotton.
- Factors for the development of cotton industries in India are
  - India is a tropical country and cotton is the most comfortable fabric for a hot and humid climate.
  - A large quantity of cotton was grown in India.
  - Abuntant availability of skilled labour.
  - In some areas, people were producing cotton textile for generations and transferred their skills from one generation to another and in the process, perfected their skills.

Establishment of Modern Cotton Mill in India

- The first modern cotton mill was established in Mumbai in 1854. Mumbai had the following advantages as a cotton textile centre:
  - It was located close to the cotton producing areas of Maharashtra and Gujarat.

- Raw cotton was brought to Mumbai from England by the Mumbai port. Therefore, raw cotton was available in Mumbai itself.
- Mumbai was the financial centre and the capital to start an industry was available there.
- It was a large town that provided employment opportunities and attracted large number of labour. Thus, cheap and abundant labour was locally available.
- The machinery required for the industry was directly imported from England.

- Later, two more mills, the Shahpur Mill and the Calico Mill were established in Ahmedabad. By 1947, the number of mills in India went up to 423.

Cotton Textile Industry : Organised and Unorganised Sector

- The cotton textile industry can be broadly divided into two sectors i.e. **organised** sectors and **unorganised** sectors.
- The unorganised sector includes cloth produced in handlooms (including khadi) and powerlooms.
- The production of the organised sector has drastically fallen from 81% in the mid twentieth century to only about 6% in 2000.

Location of Cotton Textile Industries

- Cotton is a non-weight losing 'pure' raw material so, the location of cotton textile industry is determined by other factors like power supply, labour, capital or market.
- After first cotton textile mills were set up in Mumbai and Ahmedabad, the cotton textile industry expanded very rapidly.
- The Swadeshi Movement during the freedom struggle gave a major push to the industry as there was a call for boycotting all the British made goods in favour of Indian goods. After 1921, with the development of railway network, other cotton centres expanded rapidly.
- The industry developed in the following regions
  - In **Southern** India, mills were set-up at Coimbatore, Madurai and Bengaluru.
  - In **Central India**, mills were set-up at Nagpur, Indore, Solapur and Vadodara.
  - At **Kanpur**, cotton textile mills were set-up on the basis of local investment.
  - At **Kolkata**, mills were set-up due to its port facilities.
  - In **Tamil Nadu**, development of this industry was the result of availability of hydel power for the mills. The development of hydro-electricity has resulted in the development of mills away from the cotton producing areas.
  - Availability of cheap labour also allowed the industry to be located away from the cotton producing areas. Ujjain, Bharuch, Agra, Hathras, Coimbatore and Tirunelveli were developed as a result of availability of cheap local labour.

Distribution of Cotton Textile Industries

- The cotton textile industry is located in almost every state of India where one or more of the locational factors have been favourable.
- Over the period of time, the importance of raw materials in the location of industry has been replaced by factors such as availability of markets, power and cheap labour force.
  - At present, the important centres of cotton textile industries are Ahmedabad, Bhiwandi, Solapur, Kolhapur, Nagpur, Indore and Ujjain. These are traditional centres located close to the cotton producing areas.
  - Maharashtra, Gujarat and Tamil Nadu are the leading cotton producing state. West Bengal, Uttar Pradesh Karnataka and Punjab are the other important cotton textile producers.
  - Tamil Nadu has largest number of mills and most of them produce yarn rather than cloth. Coimbatore accounts for 50% of total mills. Other important centres are Chennai, Madurai, Tirunelveli, Tuticorin, Thanjavur, Ramanathapuram and Salem.
  - In Karnataka, the industry has developed in the cotton producing areas in North-Eastern part of state, Bengaluru, Hubballi, Davangere, Ballari and Mysore are some of the important centres.
  - The cotton textile industry has developed in cotton producing Telangana region. The important centres are Hyderabad, Secunderabad and Warangal in Telangana and Guntur in Andhara Pradesh.
  - Most of the cotton textile industries have developed in the Western part of Uttar Pradesh. Kanpur is the largest centre. Other important centres of cotton textile industry are Agra, Modinagar, Saharanpur, Lucknow and Hathras.
  - In West Bengal important centres are Kolkata, Serampur, Howrah and Shyamnagar.
  - The production of cotton cloth has increased almost 5 times since independence.
  - But now cotton textlile industry has been facing tough competition from synthetic cloth.

Sugar Industry

- The sugar industry is the second most important agro-based industry in India. India is the largest producer of both sugarcane and cane sugar.

- It contributes to about 8% of total sugar production in the world. **Khandasari** and gur or jaggery is also produced from sugarcane.

Location of the Sugar Industries

- Sugarcane is a weight loosing crop. Only 9-12% of sugar is obtained per unit sugarcane, depending on its variety.
- Maharashtra has emerged as a leading sugar producer in the country and produces more than one-third of the total production of the sugar in the country.
- Uttar Pradesh is the second largest producer of sugar.
- Tamil Nadu has sugar factories in Coimbatore, Vellore, Tiruvanamalai, Villupuram and Tiruchchirappalli districts. In Karnataka, the important sugar producers are Belagavi, Ballari, Mandya, Shivamogga, Vijaiapura and Chitradurg.
- The industry is distributed in the coastal regions in East Godavari, West Godavari, Visakhapatnam districts and Nizamabad and Medak districts of Telangana.

Other Sugar Producing States

- **Bihar** Saran, Champaran, Muzaffarpur, Siwan, Darbhanga and Gaya are important sugarcane producing districts.
- **Punjab** The relative significance of Punjab has declined but sugar producing regions are Gurdaspur, Jalandhar, Sangarur, Patiala and Amritsar.
- **Haryana** Yamuna Nagar, Rohtak, Hissar and Faridabad districts.
- **Gujarat** Sugar industry is comparatively new here. Important sugar producing mills are located in Surat, Junagarh, Rajkot, Amreli, Valsad and Bhavnagar districts.

Petrochemical Industries

- Many items are derived from crude petroleum which provide raw materials for many new industries, these are collectively known as petrochemical industries.
- This group of industry has been growing very fast in India. The demand of its products is very high since 1960s as the demand for organic chemicals increased rapidly during that period.
- Petrochemical industries are divided into four sub-groups:
  (i) Polymers (ii) Synthetic fibres
  (iii) Elastomers (iv) Surfactant intermediate
- Mumbai is the hub of the petrochemical industries. Other important units are at Auraiya (Uttar Pradesh), Jamnagar, Gandhinagar and Hajira (Gujarat), Nagothane, Ratnagiri (Maharashtra), Haldia, (West Bengal) and Visakhapatnam (Andhra Pradesh).
- There are three organisations which are working in the petrochemical sectors under the administrative control of Department of Chemicals and Petrochemicals.
  These are
  (i) Indian Petrochemical Corporation Limited (IPCL)
  (ii) Petrofils Co-operative Limited (PCL)
  (iii) Central Institutes of Plastic Engineering and Technology (CIPET)
- **Polymers** are made from ethylene and propylene which are obtained after refining crude oil. It is used as a raw materials in the plastic industry. Among the polymers, polyethylene is a widely used thermoplastic.
- The National Organic Chemical Industries Limited (NOCIL) a private sector company was established in 1961 and started first naptha (a flammable oil) based chemical industry in Mumbai. Later, several other companies were formed.
- The plants located at Mumbai, Barauni, Mettur, Pimpri and Rishra are major producers of plastic materials. About 75% of these units are in small scale sector.
- The industry also uses recycled plastics which constitutes about 30% of the total production.
- **Synthetic fibres** are widely used in the manufacturing of fibers because of their durability, washability and resistance to shrinkage.

Knowledge Based Industries

- IT industries, BPOs and KPOs fall under the category of knowledge based industries. The IT revolution opened up new possibilities of economic and social transformation.
- The advancement in IT industry has had a profound influence on the country's economy. The IT and IT enabled BPOs services continue to be on a strong growth path.
- Indian software industry has emerged as one of the fastest growing sectors of the economy. The software industry has surpassed electronic hardware production in India.

New Industrial Policy, 1991

The New Industrial Policy was announced in 1991 to encourage industrial development in the country. Its objective were as follows:

- Liberalising the industry from the regulatory devices such as licenses and controls.
- Enhancing support to small scale sector.
- Increasing competitiveness of public enterprises on business lines and thus cutting their losses.

- Providing more incentives for industrialisation of the backward areas.
- Ensuring rapid industrial development in a competitive environment.
- Ensuring running of public enterprises on business line and thus cutting their loses.

The measures undertaken under this policy are as follows

- Abolition of industrial licensing.
- Free entry to foreign technology.
- Foreign investment policy.
- Access to capital market.
- Open trade.
- Abolition of phased manufacturing programme.
- Liberalised industrial location programme.

Dimensions of New Industrial Policy

The three main dimension of the New Industrial Policy were liberalisation, privatisation and globalisation.

Liberalisation Liberalisation means relaxing various government restrictions in the areas of industrial and economic policies. Through liberalisation, industrial licencing system has been abolished for all industries except for six industries which are related to security, strategic or environmental concerns.

Privatisation Privatisation in the New Industrial Policy refers to opening up the various sectors of the economy to the private investors, both domestic and multi-nationals.

Globalisation Globalisation refers to the integration of the country's economy with the world economy. There is free flow of goods and services, labour, capitals from one nation to another.

Industrial Regions in India

- Industries are not evenly distributed in the country. They tend to concentrate at certain locations due to the presence of favourable locational conditions.
- These factors include geographical, political, economic, social, etc.
- The dimensions to identify the clustering of industries are
  - The number of industrial units.
  - Number of industrial workers.
  - Quantum of power used for industrial purpose.
  - Total industrial output.
  - Value added by manufacturing, etc.

Industrial Regions and Districts

India's industrial landscape has been divided into three main categories viz. Industrial Regions, Minor Industrial Regions and Industrial Districts.

- **Major Industrial Regions** Mumabi-Pune Region, Hughli Region, Bengaluru-Tamil Nadu Region, Gujarat Region, Chotanagpur Region, Visakhapatnam-Guntur Region, Gurugram-Delhi-Meerut Region, and Kollam -Thiruvananthapuram Region.
- **Minor Industrial Regions** Ambala-Amritsar, Saharanpur-Muzaffarnagar-Bijnor, Indore-Dewas-Ujjain, Jaipur-Ajmer, Kolhapur-South Kannada, Northern Malabar, Middle Malabar, Adilabad-Nizamabad, Allahabad-Varanasi-Mirzapur, Bhojpur-Munger, Durg-Raipur, Bilaspur-Korba, and Brahmaputra valley.
- **Industrial Districts** Kanpur, Hyderabad, Agra, Nagpur, Gwalior, Bhopal, Lucknow, Jalpaiguri, Cuttack, Gorakhpur, Aligarh, Kota, Purnia, Jabalpur, and Bareilly.

Hugli Industrial Region

- It is located along Hugli river. This region extends from Bansberia in the North to Birlanagar in the South for about 100 km.
- Industries have also developed in Mednipur in the West. Kolkata-Haora forms the core of this industrial region.

Bengaluru-Chennai Industrial Region

- It is spread over all the districts of Tamil Nadu except Viluppuram. Till 1960s, the industries were only confined to Bengaluru, Salem and Madurai districts only.
- As this region is far away from coal fields, its development is dependent upon the Pykara hydroelectric plant built in 1932.
- Due to the presence of cotton growing areas, the cotton industry developed first in this region. Along with cotton mills, the loom industry also developed rapidly. Several industries converged at Bengaluru.

Gujarat Industrial Region

- This core of this region lies between Ahmedabad and Vadodara but it extends upto Valsad and Surat in the South and to Jamnagar in the West.
- The industrial structure is now diversified. Important industries are textile (cotton, silk, synthetic, fabrics), petrochemical industry, heavy and basic chemicals, motor, tractor, diesel engines, textile machinery, engineering, pharmaceuticals, dyes, pesticides, sugar, dairy products and food processing.
- The largest petroleum refinery has been set up at Jamnagar.
- Important industrial centres are Ahmedabad, Vadodara, Bharuch, Koyali, Anand, Khera, Surendranagar, Rajkot, Surat, Valsad and Jamnagar.

Chotanagpur Region

- This region extends over Jharkhand, Northern Odisha and West Bengal. The region is well known for its heavy metallurgical industries.
- Six large integrated iron and steel plants at Jamshedpur, Burnpur-Kulti, Durgapur, Bokaro and Rourkela are located within this region.

Visakhapatnam : Guntur Region

This region extends from Visakhapatnam district to Kurnool and Prakasam district in the South.

Gurugram-Delhi-Meerut Region

- The industries of this region are light and market oriented as this region is located far from mineral and power resources. Industries in this region have grown at a faster rate in the recent past.
- Major industries are electronics, light engineering and electrical goods.
- Other industries are cotton, woollen, synthetic fabrics, hosiery, sugar, cement, machine tools, tractor, cycle agricultural implements, chemical and vanaspati industries, which have developed on a large scale.
- To its South lies the Agra-Mathura industrial area, specialising in glass and leather goods. Mathura is a petro-chemical complex because of its oil refinery. Software industry has recently developed in this region.
- Important industrial centres are Gurugram, Delhi, Shahdara, Faridabad, Meerut, Modinagar, Ghaziabad, Ambala, Agra and Mathura.

Kollam-Thiruvananthapuram Region

- It is away from mineral belt of India so agricultural products processing and market oriented light industries predominate this region.
- The location of petroleum refinery at Kochchi has promoted establishment of new industries in the region. Important industrial centres are: Thiruvananthapuram, Kollam, Alwaye, Ernakulam, Alluva, Kochchi, Punalur and Alappuzha districts.
- Important industries are cotton textile, sugar, rubber, matchbox, glass, chemical fertiliser, fish-based industries, food processing, paper, coconut coir products, aluminium and cement.

Practice Questions

1. Which of the following is a power intensive industry?
   (a) Aluminium industry
   (b) Pharmaceuticals industry
   (c) Software industry
   (d) Cotton industry

2. The TISCO integrated steel plant gets iron-ore from which of these region?
   (a) Jharia (b) Kendujhar
   (c) Noamundi (d) Joda

3. The Vishvesvariya Iron and Steel Works Limited (VISL) gets its water supply through ..... river.
   (a) Subernarekha
   (b) Bhadravati
   (c) Ganga
   (d) Damodar

4. Which of the following iron and steel plants were built with Russian collaboration?
   (a) Bhilai steel plant
   (b) Rourkela steel plant
   (c) Durgapur steel plant
   (d) IISCO steel plant

5. The Bokaro steel plant was setup with collaboration with which of these countries
   (a) Germany (b) UK
   (c) France (d) Russia

6. Which of these movements gave a big push to the development of cotton textile industry in India?
   (a) Quit India Movement
   (b) Swadeshi Movement
   (c) Non-cooperation Movement
   (d) Home Rule Movement

7. Which of these states has the largest number of cotton mills in India?
   (a) Uttar Pradesh (b) Kerala
   (c) Tamil Nadu (d) Gujarat

8. Which of these state is the largest producer of sugar in India?
   (a) Uttar Pradesh (b) Maharashtra
   (c) Tamil Nadu (d) Bihar

9. The first Naphtha based chemicals industry was started in Mumbai by
   (a) CIPET (b) NOCIL (c) PCL (d) IPCL

10. Which of these is not a major industrial region in India?
    (a) Mumbai-Pune
    (b) Ambala-Amritsar
    (c) Bengaluru-Tamil Nadu
    (d) Chhotanagpur

11. Which is not a factor of industrial location?
    (a) Market (b) Capital
    (c) Population Density (d) Power

12. The earliest iron and steel company to be established in India was
(a) IISCO
(b) TISCO
(c) Visvesvaraiya Iron and Steel Works
(d) Mysore Iron and Steel Works.

13. The first modern cotton mill was established in Mumbai because
(a) Mumbai is a port
(b) It is located near cotton growing area
(c) Mumbai was the financial centre
(d) All of the above

14. The nucleus of the Hugli Industrial Region is
(a) Kolkata - Haora (b) Kolkata- Rishra
(c) Kolkata - Medinipur (d) Kolkata - Konnagar

15. Which one of the following is the second largest producer of sugar?
(a) Maharashtra (b) Uttar Pradesh
(c) Punjab (d) Tamil Nadu

16. Which of these factors do not influence the location of an Industry in India?
1. Raw material source 2. Power source
3. Presence of Market 4. Density of Population
5. Availability of labour

Codes
(a) 1, 2, 3, 4 and 5 (b) 1, 2, 3 and 5
(c) 1, 2 and 3 (d) 1, 2, 4 and 5

17. Which of these factors have favoured the development of cotton textile industry in India?
1. Tropical climate of India.
2. Production of large quantity of cotton in India.
3. Skilled labour in India.

Codes
(a) 1 and 2 (b) 1, 2 and 3
(c) 2 and 3 (d) 1 and 3

18. Which of the following steel plants are correctly arranged in the chronology of their establishment?
(a) Durgapur steel plant, Bokaro steel plant, Bhilai steel plant
(b) Bhilai steel plant, Durgapur steel plant, Bokaro steel plant
(c) Durgapur steel plant, Bhilai steel plant, Bokaro steel plant
(d) Bokaro steel plant, Bhilai steel plant, Durgapur steel plant

19. The first Cotton Mill was setup in 1854 in which city?
(a) Surat (b) Calcutta (c) Mumbai (d) Madras

20. The steel plant at Bokaro was setup in 1964 with the assistance of which of the following country?
(a) USA (b) Russia
(c) Japan (d) Israel

21. What was the most important reason for setting up of cotton textile industry in Mumbai?
(a) Nearness to Raw material
(b) Abundance of labour
(c) Availability of capital
(d) All of the above

22. Which of the following is a weight losing industry?
(a) Sugar industry
(b) Cotton textile industry
(c) Diamond cutting industry
(d) All of the above

23. Which among the following sectors of the economy have been reserved for public sector?
(a) Atomic energy
(b) Electronic manufacturing
(c) Railways
(d) Both (a) and (c)

24. Match the following and choose the correct answer.

List I (Industrial Region)	List II (Major Centre)
A. Mumbai-Pune	1. Haldia
B. Hughli	2. Salem
C. Bengaluru-Chennai	3. Rajkot
D. Gujarat	4. Sholapur

Codes

	A	B	C	D		A	B	C	D
(a)	1	2	4	3	(b)	2	3	4	1
(c)	4	1	2	3	(d)	1	2	3	4

25. Match the following and choose the correct answer.

List I (Steel Plant)	List II (Water Source)
A. Rourkela	1. Barakar River
B. Durgapur	2. Damodar River
C. Bhilai	3. Tanduladam
D. TISCO	4. Koel River

Codes

	A	B	C	D		A	B	C	D
(a)	1	2	4	3	(b)	4	3	1	2
(c)	1	2	3	4	(d)	4	2	3	1

ANSWERS

1. (a)	2. (c)	3. (b)	4. (a)	5. (d)	6. (b)	7. (c)	8. (b)	9. (b)	10. (b)
11. (c)	12. (b)	13. (d)	14. (a)	15. (b)	16. (b)	17. (b)	18. (b)	19. (c)	20. (b)
21. (d)	22. (a)	23. (d)	24. (c)	25. (d)					

CHAPTER 09

Planning and Sustainable Development in Indian Context

Planning is the process of thinking, formulation of a scheme or programme and implementation of a set of actions to achieve some goal. The most important objective of planning is to utilise resources in a sustainable manner.

Approaches of Planning

- Generally, there are two approaches of planning which are
  (i) **Sectoral Planning** It involves formulation and implementation of schemes or programmes that aims to develop various sectors of the economy such as agriculture, irrigation, manufacturing, power, construction, transport, communication, social infrastructure and services.
  (ii) **Regional Planning** Regional planning approach aims at reducing this regional imbalance in development. Regional planners have spatial perspectives to make plans for balanced development of a region.

Target Area Planning

- The planning process which is done with reference to a special target area is known as target area planning.
- The core focus of planning process is to promote development in economically backward areas.
- The Planning Commission introduced the target area and target group approaches to planning. The programmes under these two approaches include

Target Area Programmes

Some of the target area programmes were
- Command Area Development Programme
- Drought Prone Area Development Programme
- Desert Development Programme
- Hill Area Development Programme

Target Group Programmes

- Some of the target group programmes were
  (a) Small Farmers Development Agency (SFDA)
  (b) Marginal Farmers Development Agency (MFDA)
- In the Eighth Five Year Plan, special area programmes were also designed to develop infrastructure in hill areas, North-Eastern states, tribal areas and backward areas.

Hill Area Development Programme

- Hill Area Development Programme were initiated during the Fifth Five Year Plan covering 15 districts which comprised of all the hilly districts of Uttar pradesh (Present Uttarakhand), Mikir Hills and North Cachar Hills of Assam, Darjeeling Hills of West Bengal and Nilgiris in Tamil Nadu.
- These programmes aimed at harnessing the local resources of the hill areas by developing the industries like horticulture, plantation, agriculture, animal husbandry, forestry, small scale, village based industries.

Drought Prone Area Programme

- This programme was started during the Fourth Five Year Plan.
- This plan mainly emphasised on generating employment opportunities for the people of drought prone areas along with creating productive assets.
- Initially, it focussed on construction of labour intensive civil works to promote employment and create assets. Later, irrigation projects, land development programmes, afforestation, grassland development and creation of basic rural infrastructure such as rural electrification, roads, market, credit and services were also included.
- The **National Committee on Development of Backward Areas** reviewed the performance of the Drought Prone Area Development Programme. It has been observed that this programme is mainly limited to the development of agriculture and allied sectors with major focus on restoration of ecological balance.

Drought Prone Regions

- In 1967, Planning Commission identified the 67 districts (entirely or partly) as drought prone regions.

Irrigation Commission 1972, demarcated the drought prone areas and introduced the criterion of 30% irrigated area.

- Drought prone areas in India include semi-arid and arid tract of Rajasthan, Gujarat, Western Madhya Pradesh, Marathwada region of Maharashtra, Rayalseema and Telangana plateaus, Karnataka plateau and highlands and interior parts of Tamil Nadu.

Bharmaur Region : Case Study on Target Area Planning

Physical Setting of Bharmaur Region

- This region lies between 32° 11' N and 32° 41' N latitudes and 76° 22' E and 76° 53' E longitudes. Spread over an area of about 1818 sq km, the region mostly lies between 1500 m to 3700 m above the mean sea level.
- This region is popularly known as the **homeland of Gaddis** (a tribal community) and is surrounded by lofty mountains on all sides. It has Pir Panjal in the North and Dhaula Dhar in the South. In the East, the extension of Dhaula Dhar converges with Pir Panjal near Rohtang pass.
- The river Ravi and its tributaries, the Budhil and the Tundahen, drain this territory and carve out deep gorges. These rivers divide the region into four physiographic divisions called Holi, Khani, Kugti and Tundah areas. Bharmaur experiences freezing weather conditions and snowfall in winter. Monthly temperature in January remains 4°C and in July it is 26°C.
- The Bharmaur tribal area comprises Bharmaur and Holi Tehsils of Chamba district of Himachal Pradesh. It is a notified tribal area since 21st November, 1975.

Underdeveloped Economy of Bharmaur

- Harsh climate, low resource base and fragile environment influence the economy and society of the region.
- The Gaddis have experienced geographical and political isolation and socio-economic deprivation. The economy is largely based on agriculture and allied activities such as sheep and goat rearing.

Integrated Tribal Development Project (ITDP) in Bharmaur

- In 1970s, *Gaddis* were included in the list of scheduled tribes and in the same period, the development process of tribal area of this region started.
- **Later in 1974 under the Fifth Five Year Plan, the tribal sub-plan was introduced and Bharmaur was designated as one of the five Integrated Tribal Development Projects (ITDP)** in Himachal Pradesh.

Aims and Priorities of ITDP

- Improving the quality of life of the *Gaddis*.
- Narrowing the gap in the level of development between Bharmaur and other districts of Himachal Pradesh.
- The highest priority was on development of transport and communications, agriculture and allied activities as well as social and community services.

Limitations of ITDP

- Some areas still lack infrastructural development. e.g. The remote villages in Tundah and Kugti areas still lack behind in agricultural development.
- Crop cultivation is still done with traditional methods.
- Even though pastoralism has declined but still Gaddis are very mobile as a large section of them still migrate to Kangra and surrounding areas to earn their living through wage labour during winters.

Note *Five Year Plans have been replaced by 15-Years Vision Document which came into effect from 2017-18.*

Sustainable Development

- The concept **sustainable development** evolved in 20th century for holistic development. It is generally used to describe the state of particular society (for instance people living in urban and rural areas) and the process of changes experienced by them (For instance, bullock cart to cycle to bike to car).
- Development is a multi-dimensional concept which signifies positive and irreversible transformation of the economy, society and environment.

Evolution of the Concept of Sustainable Development

- The concept of sustainable development evolved due to general rise in the awareness of environmental issues in the late 1960s in the Western world. It reflected the concerns of people about the undesirable effects of industrial development on environment.
- Publication of **The Population Bomb** by Ehrlich in 1968 and **The Limits to Growth** by Meadows and others in 1972 raised the level of fear among the environmentalists and the people.

World Commission on Environment and Development (WCED)

- The United Nations established the World Commission on Environment and Development (WCED) due to the concerns raised by the world community on environmental issues. The Commission was headed by Norwegian Prime Minister Gro Harlem Brundtland.

- The Commission gave its report entitled as 'Our **Common Future** (also known as Brundtland Report') in the year 1987. This report defined sustainable development as "The development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs".

Indira Gandhi Canal Command Area : Case Study on Sustainable Development

- This project, conceived by Kunwar Sain in 1948, was launched on 31st March, 1958. The canal originates at Harike Barrage in Punjab state and goes parallel to Pakistan Border at an average distance of 40 km in Thar Desert (Marusthali) of Rajasthan.
- The total planned length of the system is 9060 km, fulfilling the irrigation needs of a total culturable command area of 19.63 lakh hectares.
- The canal works on two types of irrigation systems **flow irrigation system** and **lift irrigation system.** In the lift canal, water is lifted up to make it to flow against the slope of the land.
- The construction of this canal has been carried out in two stages
  - (i) **Stage I** In first stage, it covered the command areas of Ganganagar, Hanumangarh and Northern part of Bikaner districts. Its culturable command area is 5.53 lakh hectares, having gentle undulating topography. In this stage, the irrigation system was introduced in early 1960s.
  - (ii) **Stage II** This stage covered 14.10 lakh hectares culturable command area of Bikaner, Jaisalmer, Barmer, Jodhpur, Nagpur and Churu districts. The main characteristics of the cultural command area of stage II are
  - – Hot desert with shifting sands dunes.
  - – Summer temperature upto 50° C.
  - – Irrigation system was introduced in this stage in mid- 1980s.

Effects of Indira Gandhi Canal Irrigation on Environment

- **Positive Effect** Due to the canal irrigation, there is sufficient soil moisture availability for a longer duration and various afforestation and pasture development programmes have led to greening of land. It has resulted in a considerable reduction in wind erosion and siltation of canal systems.
- **Negative Effect** Due to intensive irrigation and excessive use of water, an alarming rate of water logging and soil salinity have been recorded.

Effects of Indira Gandhi Canal Irrigation on Agriculture

- **Positive Effect** Introduction of canal irrigation has led to increase in cultivated land and intensity of cropping.
- **Negative Effect** Intensive irrigation has also become a cause of water logging and soil salinity. So, in the near future it may hamper the sustainability of agriculture.

Measures for Promotion of Sustainable Development

- Attaining the goal of sustainable development in Indira Gandhi Canal command area requires such measures that can achieve ecological, social and economic sustainability. The measures are
  - – Rigorous implementation of water management policy is the first and foremost requirement of this project.
  - – **Water intensive crops** shall be avoided and plantation crops such as citrus fruits shall be encouraged by the people.
  - – In order to reduce the conveyance loss of water, the CAD (Command Area Development) programmes should be implemented effectively. These are lining of water courses, land development and levelling and Warabandi system (equal distribution of canal water in the command area of outlet).
  - – The areas affected by water logging and soil salinity shall be reclaimed.

    The eco-development is must through afforestation, **shelterbelt plantation** and pasture development activities, particularly in the fragile environment of Stage II.
  - – Providing adequate financial and institutional support for cultivation to the land allottees having poor economic background. Agriculture and allied activities have to develop with other sectors of the economy.

Practice Questions

1. The planning approach that aims to reduce regional imbalances in development is known as
   (a) Sectoral Planning (b) Target Area Planning
   (c) Regional Planning (d) Target Group Planning

2. The Hill Area Development Programme was started during which of the following Five Year Plans?
   (a) Sixth Five Year Plan
   (b) Fifth Five Year Plan
   (c) Fourth Five Year Plan
   (d) Eight Five Year Plan

3. The Integrated Tribal Development Programme led to which of the following improvement/s in the Bharmaur Tribal Region?
   (a) Increased cultivation of cash crops
   (b) Decline in child marriages
   (c) Improvement in female literacy
   (d) All of the above

4. Regional planning relates to:
   (a) Development of various sectors of economy.
   (b) Area specific approach of development.
   (c) Area differences in transportation network.
   (d) Development of rural areas.

5. ITDP refers to which one on the following?
   (a) Integrated Tourism Development Programme
   (b) Integrated Travel Development Programme
   (c) Integrated Tribal Development Programme
   (d) Integrated Transport Development Programme

6. Which one of the following is the most crucial factor for sustainable development in Indira Gandhi Canal Command Area?
   (a) Agricultural development
   (b) Eco-development
   (c) Transport development
   (d) Colonisation of land

7. Which of these is/are example/s of Target Area Planning?
   1. Hill Area Development Program
   2. Desert Area Development Program
   3. Small Farmer's Development Agency

   Codes
   (a) 1, 2 and 3 (b)1 and 2
   (c) 2 and 3 (d) 1 and 3

8. The Hill Area Development Programme includes which of these components?
   1. Development of Horticulture
   2. Development of Animal Husbandry
   3. Development of Forestry
   4. Development of Poultry

   Codes
   (a) 1, 2 and 3 (b) 2, 3 and 4
   (c) 1, 2, 3, 4 (d) 1, 3 and 4

9. Which of these states/region constitute the drought prone areas in India?
   1. Gujarat 2. Rayalseema
   3. Meghalaya 4. Karnataka Plateau

   Codes
   (a) 1 and 2 (b) 1, 2 and 4
   (c) 1, 3 and 4 (d) 2, 3 and 4

10. The Command Area of Stage II Indira Gandhi Canal is spread over which of these districts?
    1. Bikaner 2. Ganganagar
    3. Jaisalmer 4. Barmer

    Codes
    (a) 1, 3 and 4 (b) 1, 2, 3 and 4
    (c) 1, 2 and 3 (d) 1 and 2

11. The Bharmaur Tribal Area comprises of Bharmaur and Holi Tehsils of ..... districts in Himachal Pradesh.
    (a) Chamba (b) Kullu (c) Kasol (d) Shimla

12. The Bharmaur region is surrounded by ..... range in the North and ..... range in the South.
    (a) Pir Panjal, Zanskar
    (b) Ladakh, Dhaula Dhar
    (c) Pir Panjal, Dhaula Dhar
    (d) Dhaula Dhar, Pir Panjal

13. The World Commission on Sustainable Development published its report in 1987. The report was known as ..... .
    (a) Population bomb (b) Our common future
    (c) Limits to growth (d) Sustainable development

14. Match the Following.

Report/Publication	Published by
1. Our Common Future	A. Brundtland Commission
2. Limits to Growth	B. P. Ehrlich
3. The Population Bomb	C. D. Meadows

Codes

	A	B	C		A	B	C
(a)	1	2	3	(b)	1	3	2
(c)	3	2	1	(d)	3	1	2

15. The Indira Gandhi canal was constructed by
    (a) Kunwar Sain
    (b) Badri Narayan Tripathi
    (c) Radheshyam Roy
    (d) Raja Surajbhan Singh

16. Which of the following measures were taken in hilly areas under the special development programmes?
    (a) Animal husbandry (b) Cottage industry
    (c) Poultry (d) All of the above

17. Which of the following is the most important aim of regional planning?
(a) To increase GDP of the country
(b) To reduce inequality between regions
(c) To decentralise the governance model
(d) All of the above

18. Which of the following is a key pillar of Sustainable development?
(a) Discrimination
(b) Poverty
(c) Education
(d) Equity

19. Which of the following has been a negative effect of Indira Gandhi canal?
(a) Decreasing soil moisture
(b) Deforestation
(c) Water salinity
(d) All of the above

20. Which of the following type of erosion has been prevented with the introduction of Indira Gandhi canal?
(a) Soil erosion
(b) Wind erosion
(c) Glacial erosion
(d) Fluvial erosion

ANSWERS

1. (c)	2. (b)	3. (d)	4. (b)	5. (c)	6. (b)	7. (b)	8. (c)	9. (b)	10. (a)
11. (a)	12. (c)	13. (b)	14. (b)	15. (a)	16. (a)	17. (d)	18. (d)	19. (c)	20. (b)

CHAPTER 10

Transport and Communication

- Products like tea, milk, clothes, vegetables etc are brought from the factories and the fields to the markets with the help of **transportation** system. People not only use material things but also exchange ideas, views and messages in daily life. These exchanges take place through a **communication** system.

Means of Transportation

- There are different means of transportation such as land, water and air transport.

Land Transport

- In India, land transport is developed since ancient times when pathways and unmetalled roads were used for transportation of people and goods.
- With the economic and technological advancement, there are now metalled roads and the railways for movement of large volume of goods and passengers from one place to another.
- Ropeways, cableways and **pipelines** were also constructed to meet the demands of transporting specific goods under special circumstances.

Road Transport

- India has the second largest road networks in the world. It has a total road length of 56 lakhs km (2017-18). The first attempt to improve and modernise road network was made in 1943 with Nagpur Plan. However, due to lack of coordination among princely states and British India, it was not implemented.
- After independence, twenty-year road plan (1961) was started to improve the conditions of roads in India but still roads continue to concentrate in and around urban centres.
- **For the purpose of construction and maintenance, roads are classified as National Highways (NH), State Highways (SH), Major District Roads and Rural Roads.**

National Highways

- These roads are constructed and maintained by Central Government.
- The length of National Highways has increased from 19,700 km in 1951 to 1,01011 km in 2016. These highways connect the state capitals, major cities, important **ports**, railway junctions, etc.
- The National Highways Authority of India (NHAI) is an autonomous body, under the Ministry of Surface Transport, now Ministry of Road Transport and Highways. It was operationalised in 1995. It has been assigned with the task of development, maintenance and operation of National Highways.

State Highways

- State Governments are responsible to construct and maintain these highways. These roads connect the state capitals with district headquarters and other important towns.

District Roads

- These roads connect district headquarters and other important roads in the district.

Rural Roads

- These roads provide links in the rural areas. About 80% of the total road length in India are categorised as rural roads. There is regional variation in the density of Rural Roads as they are influenced by the nature of terrain (topography of the region).

Other Roads

- These include Border Roads and International highways.
- **Border roads** are strategically important roads along the Northern and North-Eastern boundary of the country. **Border Road Organisation** (BRO) is responsible for construction and maintenance of these roads.

- BRO was established in May, 1960. Its aim is to accelerate economic development and strengthen defence preparedness through rapid and co-ordinated improvement of border roads.
- **International Highways** are constructed with the aim to promote harmonious relationship with neighbouring countries by providing effective links with India.

Rail Transport

- India has one of the longest railway networks in the world. It facilitates the movement of both freight and people and contributes to the growth of economy.
- In 1853, the first Indian railway line was started from **Bombay to Thane** covering a distance of 34 km. Indian Railway is the largest government undertaking in India.
- Indian Railways Network has a length of 66030 km (31st March, 2015). Railways system in India has been divided into 18 zones.

Railway Zones and Headquarters

Zones	Headquarters
Central	Mumbai CST
Eastern	Kolkata
East Central	Hajipur
East Coast	Bhubaneswar
Northern	New Delhi
North Central	Allahabad
North-Eastern	Gorakhpur
North-East Frontier	Maligaon (Guwahati)
North-Western	Jaipur
Southern	Chennai
South Central	Secunderabad
South-Eastern	Kolkata
South-East Central	Bilaspur
South-Western	Hubli
Western	Mumbai (Church Gate)
West Central	Jabalpur

Note *In 2010, Kolkata Metro Rail was made the 17th Zone of Railway and in 2019 South Coast Railway Zone was constituted as the 18th Zone of Railways.*

Railway Gauges in India

- Railway gauges have been categorised into three types on the basis of the width of the track of Indian Railways.

(i) **Broad Gauge** In broad gauge, the distance between rails is 1.676 metre. The total length of broad gauge lines was 60,510 km in 2016.

(ii) **Metre Gauge** In metre gauge, the distance between the rails is 1 metre. The total length of metre gauge was 3,880 km in 2016.

(iii) **Narrow Gauge** In narrow gauge, the distance between the rails is 0.762 metre or 0.610 metre. The total length of narrow gauge line is 2,297 km in 2016. This category of railway lines are mostly found in the hilly areas.

Development of Railways in India

- Indian railways has launched extensive programmes to convert metre gauge and narrow gauge to broad gauge.
- Steam engines have been replaced by diesel and electric engines. Replacement of steam engine running on coal has also improved the environment.
- The development of **Konkan railway** in 1988 has been a very important achievement. It runs along the West coast and provides a direct link between Mumbai and Mangalore.
- Metro rail has revolutionised the urban transport system in Kolkata and Delhi.
- The railway network is less dense in hill states, North-Eastern states, Central India and Rajasthan.

Water Transport

- It is the **cheapest means of transport** for carrying heavy and bulky material as well as passenger services.
- It is a fuel efficient and eco-friendly mode of transport. The water transport is of two types i.e. Inland waterways and Oceanic waterways.

Inland Waterways

- Before the introduction of railways, **Inland waterways** was the chief mode of transport. But with time its importance reduced due to tough competition from road and railway transport.
- Moreover, diversion of river water for irrigation purposes made the inland waterways non-navigable in large parts of their courses.
- India has 14,500 km of navigable waterways which accounts for about 1% of the country's transportation. It includes rivers, canals, backwaters, creeks, etc.
- **The Inland Waterways Authority which was setup in 1986 is responsible for the development, maintenance and regulation of National Waterways in the country.**

- Ten other inland waterways have been identified by Inland Waterways Authority for further development.
- The backwaters (Kayal) of Kerala has special significance which not only provides transport but also attracts tourists. The famous **Nehru Trophy Boat Race** (*Vallamkali*) is also held in the backwaters.

Oceanic Routes

- These play an important role in the transport sector of India's economy. India's vast coastline of about 7,517 km (including islands) makes it suitable for this type of transport. There are 12 major and 185 minor ports which provide infrastructural support to oceanic routes.

Air Transport

- It facilitates the fastest movement of goods and passengers from one place to another place. Air transport in India was started in 1911 over a short distance (10 km) from Allahabad to Naini. But, the real development took place after independence.
- The Airport Authority of India is responsible for providing safe, efficient air traffic and aeronautical communication services in the Indian Air space. It manages 125 airports.
- **Pawan Hans Limited** provides helicopter services in hilly areas and also to Petroleum sector. Its services are widely used by tourist in North-Eastern sector.

Air India

- It is a corporation of India which provides domestic and International Air Service for both passengers and cargo traffic. It connects all the continents of the world through its services.

Oil and Gas Pipelines

- Pipelines are convenient and best means of transporting liquids and gases over long distances. These can also transport solids after converting them into slurry.
- **Oil India Limited** (OIL) under the Ministry of Petroleum and Natural Gas is responsible for exploration, production and transportation of crude oil and natural gas.
- Its one of the major achievements was the construction of Asia's first cross country pipeline. This pipeline covers a distance of 1157 km from Naharkatiya oil field in Assam to Barauni refinery in Bihar.

Communication Networks and Geographical information

- **Communication networks refer to the method of sharing information from one person or place to another through communication methods evolved by human beings over time.**
- Invention of post-office, telegraph, printing press, **satellite** telephone has made communication much faster.
- Developments in science and technology has contributed in bringing about a revolution in the field of communication. On the basis of scale and quality, the modes of communication can be divided into

Personal Communication System

- The most advanced and best means among all the personal communication system is **internet** which is widely used in urban cities.
- **E-mail** is the main source through which a user can directly connect with others and can also get access to the world of knowledge and information.
- New modes of internet communication have also evolved after e-mail. Internet is now used for **e-commerce** and for carrying out **money transactions.**

Mass Communication System

- Mass communication system uses different modes of communication such as Radio, Television (TV) and Satellite communication.

Radio

- Radio broadcasting was started in 1923 by **Radio Club of Bombay**.
- The Government of India, in 1930 took the control of this mode of communication under Indian Broadcasting System. It was changed to **All India Radio** in 1936 and to **Akashwani** in 1957.
- All India Radio broadcasts various programmes related to information, education, entertainment and special news bulletins on sessions of the Parliament and State Legislatures.

Television

- Television (TV) broadcasting has emerged as the most effective audio-visual medium for disseminating (spreading) information and educating masses. First television broadcasting was started in Delhi in 1959.
- After 1972, several other centres became operational. In 1976, TV broadcasting services were separated by All India Radio and got a separate identity as Doordarshan (DD).
- **After INSAT-IA** (National Television -DD1) became operational, **Common National Programmes** (CNP) were started for the entire network and its services were extended to the backward and remote rural areas.

Satellite Communication

- Satellite is an advanced mode of communication. They also regulate the use of other means of communication. Various operations can be done through satellite images, e.g. weather forecast, monitoring of natural calamities, surveillance of border areas, etc.
- There are two satellite systems in India, on the basis of configuration and purposes
  (i) Indian National Satellite System (INSAT)
  (ii) Indian Remote Sensing Satellite System (IRS)
- The **National Remote Sensing Centre** (NRSC) at Hyderabad is responsible for facilitating the acquisition of data and its processing.

Practice Questions

1. Nagpur Plan is associated with which of the following?
   (a) Railway modernisation
   (b) Road modernisation
   (c) Waterway development
   (d) Airways development
2. Which one of the following is the longest National Highway of India?
   (a) NH-1 (b) NH-7
   (c) NH-6 (d) NH-8
3. The Golden Quadrilateral connects which of these cities in India?
   (a) Delhi-Gurugram-Faridabad - Mumbai
   (b) Delhi-Mumbai-Chennai-Kolkata
   (c) Chennai-Bengaluru-Hyderabad-Pune
   (d) Delhi-Chennai-Bengaluru-Pune
4. Which of the following constitute the maximum length of roads in India?
   (a) National Highways (b) State Highways
   (c) District Roads (d) Rural Roads
5. Name the Headquarters of Northern Railway Zone of India.
   (a) Lucknow (b) Kanpur
   (c) New Delhi (d) Chandigarh
6. In how many zones has the Indian Railway system been divided?
   (a) 9 (b) 12
   (c) 16 (d) 14
7. Which of these is the most important body in India engaged in exploration and production of crude oil?
   (a) Oil India Ltd. (b) Bharat Petroleum
   (c) ONGC Videsh (d) Indane Ltd.
8. The National Waterway II lies on which river in India?
   (a) Ganga (b) Yamuna
   (c) Brahmaputra (d) Chambal
9. On which river and between which two places does the National Waterway No. 1 lie?
   (a) The Brahmaputra, Sadiya- Dhubri
   (b) The Ganga, Haldia-Allahabad
   (c) West Coast Canal, Kottapuram to Kollam
   (b) None of the above
10. Which of these provide helicopter services in hilly areas in the North-East region in India?
    (a) Air India Ltd. (b) Pawan Hans Ltd.
    (c) Indian Airlines (d) BHEL Ltd.
11. 'Indian' was merged with Air India to form a single airline in which of the following years?
    (a) 2009 (b) 2011 (c) 1992 (d) 1981
12. In which of the following year, the first radio programme was broadcast?
    (a) 1911 (b) 1936 (c) 1927 (d) 1923
13. Which of these is true for road transport in India?
    1. India has the second largest road network in the world.
    2. About 20% of passenger traffic is carried by roads in India.
    3. Twenty year road plan was introduced in the year 1961 to improve the conditions of roads.

    Codes
    (a) 1, 2 and 3 (b) 1 and 2
    (c) 1 and 3 (d) 2 and 3
14. Which of these states operate the Konkan Railways?
    1. Maharashtra 2. Goa
    3. Andhra Pradesh 4. Karnataka

    Codes
    (a) 1, 2 and 3 (b) 1, 2, 3 and 4
    (c) 1, 2 and 4 (d) 1 and 3
15. Which of the following is/are the use/s of satellite communication in India?
    1. Management of natural resources.
    2. Meteorological observation.
    3. Telecommunication.

    Codes
    (a) 1 and 2 (b) 1, 2 and 3
    (c) 2 and 3 (d) 1 and 3
16. Telephone, Letters, Email.... are examples of which type of communication?
    (a) Modern communication
    (b) Media communication
    (c) Personal communication
    (d) Information technology

17. The headquarters of South Central railway zone is located at
(a) Secunderabad (b) Indore
(c) Belgaum (d) Nagpur

18. The Konkan railway connects which of the following states?
(a) Karnataka and Chhattisgarh
(b) Karnataka and Maharashtra
(c) Tamilnadu and Kerala
(d) Jharkhand and Maharashtra

19. The Indian railways is managed by which of the following?
(a) Central government
(b) State government
(c) Border road organisations
(d) Both (a) and (b)

20. Satellite data can be used for which of the following purposes?
(a) Weather forecasting
(b) Monitoring natural disasters
(c) Surveillance in strategic areas
(d) All of the above

21. Which category of roads constitute the largest proportion of roads in India?
(a) National highways (b) Rural roads
(c) Border roads (d) State highways

22. Which among the following is the most advanced form of personal communication?
(a) Postal system (b) Telegraph
(c) Telephone (d) Internet

23. Which is the most suitable transport system for carrying bulky material over long distance?
(a) Land transport
(b) Air transport
(c) Water transport
(d) None of the above

24. Match the following correctly and choose the correct answer.

	National Waterway		Strech
A.	NW I	1.	Sadiya - Dhubri
B.	NW II	2.	Allahabad - Haldia
C.	NW III	3.	Kottapuram-Kollam

Codes

	A	B	C		A	B	C
(a)	1	3	2	(b)	2	1	3
(c)	2	3	1	(d)	1	2	3

25. Match the following correctly and choose the correct answer.

	Railway Zone		Headquarter
A.	Central Zone	1.	New Delhi
B.	Northern Zone	2.	Mumbai (CST)
C.	North Central	3.	Allahabad

Codes

	A	B	C		A	B	C
(a)	1	3	2	(b)	1	2	3
(c)	2	1	3	(d)	2	3	1

ANSWERS

1. (b)	2. (b)	3. (b)	4. (d)	5. (c)	6. (c)	7. (a)	8. (c)	9. (b)	10. (b)
11. (b)	12. (d)	13. (c)	14. (c)	15. (b)	16. (c)	17. (a)	18. (b)	19. (a)	20. (d)

CHAPTER 11

International Trade

- International trade is the exchange of capital, goods and services across international borders. International trade is mutually beneficial to countries as no country is self sufficient in terms of natural, human resources and economic development.
- India's contribution in world trade is as low as 1% of the total volume but it plays a significant role in the world's economy.

Changing Patterns of India's International Trade

India's international trade has undergone a major change in recent years in terms of volume, composition and direction.

Change in Volume of India's International Trade

- Total value of goods and services traded is considered as volume of trade. There has been an increase in volume of import and export over the years.
- The difference between the value of exports and imports has also declined over the period of time. But, still the value of imports continue to be higher than that of value of exports.
- This results in a negative trade balance which means that the country is importing more that what it is exporting, in terms of value of goods and services.
- India's volume of foreign trade has risen from ₹ 1214 crore in 1950-51 to ₹ 4429762 crore in 2016-17. This sharp rise has been due to the following factors:
  - Growth in the manufacturing sector.
  - Liberal policies of the government.
  - Diversification of markets.

Changing Pattern of Composition of International Trade of India

- The types of goods and services imported and exported by countries include the composition of trade.
- The composition of commodities in the International Trade of India has been undergoing change over the years.

Changing Pattern of Composition of India's Exports

- The share of agricultural and allied products has declined in India's exports whereas the share of crude and petroleum products have increased.
- Among the agricultural products, there is a decline in exports of traditional items like coffee, cashew etc. But floricultural products, fresh fruits, marine products and sugar have increased. The decline in traditional items has been due to high international competition.
- The share of ore minerals and manufactured goods have largely remained constant from 2009-10 to 2010-11 and 2015-16 to 2016-17.
- Manufacturing sector alone accounted for 73.6% of India's total exports in 2016-17. Engineering goods have shown a significant growth in the exports. Gems and jewelleries still contribute a large share in India's exports.
- Main competitors of India include China and other East Asian countries.

Changing Pattern of Composition of India's Import

- During 1950s and 1960s, India had to import many items like foodgrains, capital goods, machinery and equipments.
- The Balance of Payment was unfavourable as imports were more than exports inspite of all the efforts of import substitution.
- After 1970, the success of Green Revolution led to discontinuation of foodgrain import.
- In 1973, the energy crisis in India led to increase in the prices of petroleum, so, petroleum imports were increased..
- Foodgrain import was replaced by fertilizers and petroleum.
- Other commodities in the import list of India are machine and equipment, special steel, edible oil and chemicals, etc.
- Petroleum products have shown an increase in the imports of India. This is because of its varied uses like fuel as well as an industrial raw material in industries.

- This indicates rise in the industrialisation and high living standard of people.
- Timely price rise in the international market is another reason for the steep rise in value of imports.
- Capital goods, e.g. non-electrical machinery, transport equipment, manufactures of metals and machine tools show a steady increase in the import list of India. This is due to rising demand in the export oriented industrial and domestic sectors.
- There has been a fall in import of edible oils and import of food and allied products.
- Other important commodities of India's import are pearls and semi-precious stones, gold and silver, metalliferrous ores and metal scrap, non- ferrous metals, electronic goods, etc.

Direction of Trade

- India has trade relations with most of the countries and major trading blocks of the world.
- From 2010-11 to 2016-17, the trade with Europe, Africa, North and Latin America, Asia and ASEAN has increased. Maximum imports have been from Asia and ASEAN.
- Most of India's foreign trade is carried through sea and air routes. A small portion of trade is also carried through land route to neighbouring countries like Nepal, Bhutan, Bangladesh and Pakistan.
- India has adopted measures such as trade liberalisation, reduction in import duties, delicensing and change from process to product patents to expand its share in the international trade.

Direction of India's Import trade

Region	Imports	
	2010-11	2016-17
Europe	323857	403972
Africa	118612	193327
North America	100602	195332
Latin America	64576	115762
Asia and ASEAN	1029881	1544520

Sea Ports as Gateways of International Trade

- India is surrounded by sea from three sides. It has a long coast line, which makes it suitable for using oceanic transport for International trade.
- India has a long tradition of sea faring and has developed a number of ports. Ports on the West coast are more than ports on the East coast.
- The emergence of ports as the gateways of international trade became important after the coming of European traders and colonisation of country by the British.
- This led to variations in the size and quality of ports. These are some ports having large area of influence and other ports which have less area of influence.

Evolution and Development of Ports in India

- The ports in India have been in use since ancient times. They were developed when the British colonised India. The British used the ports as suction points by extracting resources from their hinterlands.
- Now, Indian ports are handling large volume of domestic as well as international trade. These are equipped with modern facilities.
- Earlier the development of ports was the responsibility of government agencies. But now private entrepreneurs have been invitied to modernise these ports as there is increasae in functions of these ports and they have to be brought at par with the international ports.
- The capacity of ports have also increased from 20 million tonnes of cargo in 1951 to more than 837 million tonnes in 2016.

Major and Minor Ports

- **Major Ports** Ports which are extensively used for international trade and have a very large area of influence are known as Major ports. Central Government decides the policy and plays the regulatory functions in case of major ports. There are 12 major ports in India. These handle larger share of total traffic.
- **Minor Ports** Ports that supplement the major ports in their functions are called Minor ports. The state government decides the policies and functions of these ports. There are 200 minor or intermediate ports in India.

Important Ports of India

Some of the important Indian ports along with their hinterlands are discussed below:

- **Kandla Port** This port is situated at the head of Gulf of Kuchchh in Gujarat state. The main purpose of this port is to fulfil the needs of Western and North-Western parts of the country and also to ease the pressure at Mumbai port.
- **Mumbai Port** This port is a natural harbour and the biggest port of India. This port was developed by the British. The port is located closer to the general routes from the countries of Middle East, Mediterranean countries, North Africa, North America and Europe where most of the country's overseas trade is carried out.
- **Jawaharlal Nehru Port** This is a satellite port which is situated at Nhava Sheva. The main purpose of this

port is to relieve the pressure at the Mumbai port. It is the **largest container port in India**.

- **Marmagao Port** This is a natural harbour in Goa which is located at the entrance of the Zuari estuary. Its importance increased after its remodelling in 1961 to handle iron ore exports to Japan.
- **New Mangalore Port** This port is situated in Karnataka which its major hinterland. It is specialised in exports of iron-ore and iron concentrates.
- **Kochchi Port** This port is popularly known as the **Queen of the Arabian Sea**. It is a natural harbour and located at the head of Vembanad Kayal.
- **Kolkata Port** This port is situated on the Hughli river, 128 km inland from the Bay of Bengal. It is an inland riverine port. Like Mumbai port, this port was also developed by the British as Kolkata had the advantage of being the capital city of the British.
- **Haldia Port** This port is situated 105 km downstream from Kolkata. The main purpose of this port is to reduce the congestion at Kolkata port.
- **Paradwip Port** This port is located on the Mahanadi river delta, about 100 km from Cuttack.
- **Visakhapatnam Port** This port is a land-locked harbour located in Andhra Pradesh. A channel cut through solid rock and sand connects this port to the sea.
- **Chennai Port** This is an artificial harbour which is considered as one of the oldest ports on the Eastern coast. It was built in 1859.
- **Ennore port** This is a newly developed port in Tamil Nadu situated 25 km North of Chennai. It has been constructed to ease the pressure at Chennai port.
- **Tuticorin Port** It was also designed to relieve the pressure of Chennai port. This port handles a number of commodities including coal, salt, foodgrains, edible oils, sugar, chemicals and petroleum products.

Airports

It is the fastest means of transport from one place to another. It plays a significant role in the international trade.

The advantages of air transport are as follows:

- Air transport has a great advantage of handling high value or perishable goods over long distances.
- It has reduced distances by minimising the travel time.
- It is very much essential for the vast country like India, where distances are large and the terrain and climatic conditions are diverse.

For example, dense forested lands and North-Eastern states need air transport at greater scale due to their terrain and topography.

Despite having many advantages, it has disadvantages like

- It is very costly mode of transportation which is not affordable to everyone.
- It is not suitable for carrying heavy and bulky commodities.

Due to these disadvantages the participation of this type of transport reduces in the international trade as compared to the oceanic routes.

There are 25 major airports functioning in the country. They are Ahmedabad, Bengaluru, Chennai, Delhi, Goa Guwahati, Hyderabad, Kolkata, Mumbai,

Thiruvananthapuram, Srinagar, Jaipur, Calicut, Nagpur, Coimbatore, Cochin, Lucknow, Pune, Chandigarh, Mangaluru, Visakhapatnam, Indore, Patna, Bhubaneshwar and Kannur.

Practice Questions

1. There has been a significant rise in India's International trade. This is due to
   (a) rapid growth in manufacturing sector
   (b) liberal policies of the government
   (c) diversification of markets
   (d) All of the above
2. Which of the following sector has seen a decline in the composition of exports of India in the last decade?
   (a) Manufactured goods
   (b) Petroleum products
   (c) Agriculture and Allied products
   (d) Minerals ores
3. Which of these is an artificial port/harbour?
   (a) Mumbai port (b) Kochchi port
   (c) Chennai port (d) Marmagao port
4. Which of these port is situated at the entrance of the Zuari estuary?
   (a) Mumbai port (b) Chennai port
   (c) Marmagao port (d) Haldia port
5. Which of the following is an inland port?
   (a) Kochchi port (b) Ennore port
   (c) Haldia port (d) Kolkata port
6. Kolkata port has lost its significance an account of the diversion exports to which port?
   (a) Visakhapatnam (b) Paradwip port
   (c) Haldia port (d) All of these
7. Which of the following is the hinterland of Kolkata port?
   (a) Sikkim (b) Uttar Pradesh
   (c) West Bengal (d) All of these
8. Paradwip port is located in the delta of which of these rivers?
   (a) Godavari (b) Ganga
   (c) Krishna (d) Mahanadi
9. Which of the following is a satellite port of Chennai port?
   (a) Kolkata port (b) Haldia port
   (c) Tuticorin port (d) Paradwip port
10. Which of the following ports is not located on the East coast of India?
    (a) Kolkata port (b) Paradwip port
    (c) Tuticorin port (d) Mangaluru port
11. Which of the following is not an international airport of India?
    (a) Bhopal (b) Bengaluru
    (c) Chennai (d) Nagpur
12. Trade between two countries is termed as:
    (a) Internal trade (b) International trade
    (c) External trade (d) Local trade
13. Which one of the following is a land-locked harbour?
    (a) Visakhapatnam (b) Mumbai
    (c) Ennore (d) Haldia
14. Most of India's foreign trade is carried through:
    (a) Land and sea (b) Land and air
    (c) Sea and air (d) Sea
15. Which of the following is true in the context of International trade of India?
    1. There has been an increase in volume of imports and exports over the years.
    2. The value of imports are higher than the value of exports.

    Codes
    (a) Only 1 (b) Only 2
    (c) Both 1 and 2 (d) None of these
16. Which of these products and commodities constitute the export basket of India?
    1. Manufactured goods
    2. Crude and petroleum products
    3. Ores and minerals

    Codes
    (a) 1 and 2 (b) 1, 2 and 3
    (c) 2 and 3 (d) 1 and 3
17. Which of these commodities constitute the imports of India from other countries?
    1. Machines and equipments
    2. Edible oil
    3. Fertilisers
    4. Iron and steel

    Codes
    (a) 1, 2 and 3 (b) 1, 2, 3 and 4
    (c) 2, 3 and 4 (d) 1, 2 and 4
18. Which of the following measures have been adopted by India to expand its share in the International Trade?
    1. Trade liberalisation
    2. Increasing export duties
    3. Delicencing of industries

    Codes
    (a) 1 and 2 (b) 1 and 3
    (c) 1, 2 and 3 (d) 2 and 3
19. Which of the following ports have been arranged correctly from North to South?
    (a) Kolkata, Paradwip, Visakhapatnam, Chennai
    (b) Chennai, Kolkata, Paradwip, Visakhapatnam
    (c) Kolkata, Chennai, Paradwip, Visakhapatnam
    (d) Chennai, Paradwip, Visakhapatnam, Kolkata

20. Which one of the Indian sea ports provides facilities to the land-locked neighbouring countries?
(a) Nhava Sheva (b) Kandla
(c) Kolkata (d) Visakhapatnam

21. Which of the following is not an important item which India imports from other countries?
(a) Petroleum and petroleum products
(b) Food grains
(c) Machinery
(d) Transport equipment

22. In which state is Nhava Sheva port located?
(a) Gujarat (b) Goa
(c) Maharashtra (d) Karnataka

23. Which port is called the 'Queen of Arabian Sea'?
(a) Mangalore (b) Cochi
(c) Mumbai (d) Kandla

24. Which sector accounts for largest value of India's export basket?
(a) Manufacturing (b) Service sector
(c) Agricultural sector (d) Dairy sector

25. Match the following correctly and choose the correct answer.

List I (Port)	List II (Satellite port)
A. Mumbai port	1. Hughli port
B. Chennai port	2. Jawaharlal Nehru port
C. Kolkata port	3. Ennore port

Codes

	A	B	C		A	B	C
(a)	3	1	2	(b)	3	2	1
(c)	2	3	1	(d)	2	1	3

ANSWERS

1. (d)	2. (c)	3. (c)	4. (c)	5. (d)	6. (d)	7. (d)	8. (d)	9. (c)	10. (d)
11. (a)	12. (b)	13. (a)	14. (c)	15. (c)	16. (b)	17. (b)	18. (b)	19. (a)	20. (c)
21. (b)	22. (c)	23. (b)	24. (a)	25. (c)					

CHAPTER 12

Geographical Perspective on Selected Issues and Problems

Environmental Pollution

- The release of substances and energy from waste products of human activities causes environmental pollution. The types of pollution are
  (i) Water pollution (ii) Air pollution
  (iii) Noise pollution (iv) Land degradation

Water Pollution

- Rise in the pollutants in the water bodies leads to water pollution, which makes it unfit for human use. Quality of water has degraded due to indiscriminate use of water because of the increasing population and industrial expansion.
- Surface water in rivers, canals, lakes, etc is not pure. It contains small quantities of suspended particles, organic and inorganic substances.

Sources of Water Pollution

- **Natural Sources** These sources include erosion, landslides, decay and decomposition of plants and animals, etc.
- **Human Sources** Through industrial, agricultural and cultural activities, human beings pollute water.
  (i) **Industrial Sources** Industries are source of a number of undesirable products including industrial wastes, polluted wastewater, poisonous gases, chemical residuals, numerous heavy metals, dust and smoke, etc.
  (ii) **Agricultural Sources** Agriculture has modernised with the use of various types of chemical fertilisers like inorganic fertilisers, pesticides and herbicides, etc. These pollutants are washed down to rivers, lake, tanks and pollute them. Fertilisers lead to an increase in the nitrate content in surface waters.
  (iii) **Cultural Activities** Activities like pilgrimage, religious fairs, tourism, etc are also contributing factors that cause water pollution.

Diseases Caused Due to Water Pollution

- Water pollution causes a number of water- borne diseases. The commo. diseases caused by water pollution are diarrhoea, intestinal worms, hepatitis etc. Data from the WHO shows that almost one-fourth of the **communicable diseases** in India are water-borne.

Pollution in Ganga

- The pollution of river Ganga, flowing through one of the most populous regions of India is a cause of concern. To improve the conditions of the river, National Mission for Clean Ganga was initiated. The Namami Gange Programme was launched for the same.

Sources of Pollution in the Ganga and Yamuna Rivers

Rivers and State	Polluted Stretches	Nature of Pollution	Main Polluters
Ganga (Uttar Pradesh, Bihar and West Bengal)	(a) Downstream of Kanpur	(a) Industrial pollution from towns like Kanpur	Cities of Kanpur, Allahabad, Varanasi, Patna and Kolkata release domestic waste into the river
	(b) Downstream of Varanasi	(b) Domestic waste from urban centres	
	(c) Farakka Barrage	(c) Dumping of carcasses in the river	
Yamuna (Delhi and Uttar Pradesh)	(a) Delhi to confluence with Chambal	(a) Extraction of water by UP and Haryana for irrigation	Delhi dumping its domestic waste
	(b) Mathura and Agra	(b) Agricultural runoff resulting in high levels of micro pollutants in Yamuna	
		(c) Domestic and industrial waste of Delhi flowing into the river	

Namami Gange Programme

The Union Government has launched the 'Namami Gange Programme' with the following objectives

- Developing sewerage treatment systems in towns.
- Monitoring of industrial effluents.
- Development of river front.
- Afforestation along the bank of the river to increase biodiversity.
- Cleaning the river surface.
- Development of 'Ganga Grams' in Uttarakhand, UP, Bihar, Jharkhand and West Bengal.
- Creating public awareness to avoid adding pollutants in the river even in the form of rituals.

Air Pollution

A larger proportion of pollutants present in the air for a long duration is known as air pollution. Pollutants like dust, fumes, gas, fog, odour, smoke or vapour present in the air in substantial proportion and duration are considered as air pollutants. These pollutants are harmful for flora, fauna and to property.

Sources of Air Pollution

The main sources of air pollution are combustion of fossil fuels, mining and industries. These processes release oxides of sulphur and nitrogen, hydrocarbons, carbon dioxide, carbon monoxide, lead and asbestos.

Consequences of Air Pollution

- Various diseases related to respiratory, nervous and circulatory systems are caused by air pollution.
- A visible cover of smoky fog over the cities called as **urban smog** is caused by air pollution. The smog has a harmful effect on human health.
- Acid rain is also caused by air pollution. The first rain is comparatively more acidic than the subsequent rains.

Noise Pollution

It is the harmful level of noise that creates a state which is unbearable and uncomfortable to human beings.

Sources of Noise Pollution

- Major sources of noise pollution are various factories, mechanised construction and demolition works, automobiles, aircrafts, etc.
- Besides these, there are also some periodic but polluting sources of noise like sirens, loudspeakers, etc which are used in various festivals, programmes associated with community activities.
- The level of noise is measured by sound level expressed in terms of **decibels** (dB). The biggest nuisance of noise pollution is the noise produced by traffic.

Consequences of Noise Pollution

Increase in environmental noise pollution can cause hearing impairment, hypertension, annoyance, mental problems or disorders and sleep disturbance etc.

Land Degradation

- Land degradation in general term, refers to a temporary or a permanent decline in productive capacity of the land.
- Land degradation is caused by soil erosion, water-logging, salinisation and alkalinisation of land. If land is consistently used without managing its fertility, it becomes degraded and its productivity also declines. Though not all degraded land comes in wasteland category, but when process of degradation is not checked it leads to the conversion to wasteland.
- The National Remote Sensing Centre (NRSC) has classified the wastelands by using remote sensing techniques. The wastelands have been categorised according to the processes that have created them.

Wasteland formed by Natural Agents

These are the wastelands which are primarily caused by natural agents such as gullied/ravine land, desertic or coastal sands, barren rocky areas, steep sloping land and glacial areas.

Wasteland formed by Natural and Human Factors

This land includes water logged and marshy areas, land affected by salinity and alkalinity and land with or without scrub, which have largely been formed by both natural as well as human factors.

Wasteland formed by Man-made Processes

These are wastelands caused by human action which includes degraded shifting cultivation area, degraded land under plantation crops, degraded forests, degraded pastures, and mining and industrial wastelands, etc.

Watershed Management as a Method to Prevent Land Degradation

- Implementing watershed management programmes that would acknowledge the linkages between land, water and vegetation and aims to improve livelihoods of the people through natural resource management and community participation.
- An important example of this programme being used to revitalise the land is in the Jhabua district in Madhaya Pradesh. The *Bhils* in the Petlawad Block of Jhabua district (Sat Rundi hamlet of Karravat Village) have revitalised large parts of their common property resources through their own efforts.

Each household planted and maintained one tree on the common property. They also planted fodder grass on the pasture land so that it would provide fodder for their cattle in the future.

Types and Sources of Pollution

Pollution Types	Pollution Involved	Sources of Pollution
Air Pollution	Oxides of sulphur (SO_2, SO_3), oxides of nitrogen, carbon monoxide, hydro-carbon, ammonia, lead, aldehydes, asbestos and beryllium.	Combustion of coal, petrol and diesel, industrial processes, solid waste disposal, sewage disposal, etc.
Water Pollution	Odour, dissolved and suspended solids, ammonia and urea, nitrate and nitrites, chloride, fluoride, carbonates, oil and grease, insecticide and pesticide residue, tannin, coliform MPM (bacterial count) sulphates and sulphides, heavy metals, e.g. lead, arsenic, mercury, manganese, etc radioactive substances.	Sewage disposal, urban run off, toxic effluents from industries, run-off over cultivated lands and nuclear power plants.
Land Pollution	Human and animal excreta, viruses and bacteria, garbage and vectors therein, pesticides and fertiliser-residue, alkalinity, fluorides, radioactive substances.	Improper human activities, disposal of untreated industrial waste, use of pesticides and fertilisers.
Noise pollution	High level of noise above tolerance level.	Aircrafts, automobiles, trains, industrial processing and advertising media

Urban Waste Disposal

- Urban areas have a variety of sources which generate huge amount of wastes. Environmental pollution by solid wastes has now become a cause of concern due to enormous quantity of wastes generated in the country.
- Solid waste refers to various old and unused articles such as small stained metal pieces, broken glassware, plastic containers, polythene bags, CDs, floppies etc dumped at different places. These discarded articles are also termed as refuse garbage and rubbish.

Sources of Solid Wastes

- **Household or Domestic Establishment** Wastes generated by domestic establishment is disposed off either on public lands or on private contractor's sites.
- **Industrial or Commercial Establishments** Municipal bodies collect the solid wastes of industrial units and dispose these off at low lying public grounds (landfill areas). Disposal of industrial wastes has increased because of the high concentration of industrial units in and around urban centres.

Effects of Improper Management of Solid Waste

- Solid wastes are threat to human health and can cause various diseases. It creates foul smell and harbours flies and rodents that can cause typhoid, diphtheria, diarrhoea, malaria, cholera and other diseases.
- Industrial solid waste can cause water pollution as it is dumped into water bodies. River pollution from untreated sewage from city based industries also results into various health problems.
- Untreated wastes release various poisonous biogases such as methane.

Rural-Urban Migration

- Movement of people from one place to another is called **migration.** This trend of migration takes place due to a number of factors like
  - High demand for labour in urban areas.
  - Low job opportunities in rural areas.
  - Unbalanced pattern of development between urban and rural areas.
  - Poor people usually prefer to settle in mega cities for their livelihood. The reason for this is that smaller and medium cities provide low opportunities.
- Rural-urban migration is the major factor for rapid increase of population in Indian cities.
- Mostly daily wage workers like welders, carpenters, etc move to other cities for work. They send remittances to their families for daily consumption, healthcare, schooling of children, etc. Some part of the money is also used for agriculture, purchasing land, building houses etc. Though this significantly improves the living standard and economic conditions of their families but they also have to bear the pain of separation as the jobs are temporary and transferable.
- These poor, semi-literate and unskilled people migrating from rural to urban areas usually end up performing low paid menial jobs in the informal sector.

Trends of Urbanisation

- About 47 per cent of the world's six billion population lives in cities and more will join them in near future.
- By 2050, an estimated two-thirds of the world's population will live in urban areas, imposing more pressure on the space infrastructure and resources of cities.

- Urban population grows as a result of **natural increase** (when birth rate exceeds death rate), **net in-migration** (when people move in than out), and sometimes re-classification of urban areas.
- In India, it is estimated that after 1961 around 60 per cent of the urban growth has been attributed and 29 per cent of them from rural areas to urban migration.

Development of Slums in India

- Slums are occupied by those migrants who were forced to migrate from the rural areas to the urban centres in search of livelihood but due to high rent and high cost of land, they could not afford proper housing.

  Thus, they are forced to live in environmentally incompatible and degraded areas. For example, **Dharavi slum of central Mumbai is the Asia's largest slum.**

Problems of Slums in India

- Dilapidated (broken-down) houses.
- Poor hygenic conditions.
- Poor ventilation
- Lack of basic amenities like drinking water, light and toilet facilities.
- Slums are overcrowded having narrow street pattern prone to serious hazards from fire.
- They are marked by unregulated drainage system and open defecation.
- Besides this, most of the slum dwellers engage in low paid, high risk-prone unorganised sectors of the urban economy.
- Due to abject poverty situation, slum dwellers are unable to give proper education to their children.
- Poverty has also made these people vulnerable to drug abuse, alcoholism, crime, vandalism, escapism, apathy and ultimately social exclusion.

The Swachh Bharat Mission (SBM)

- The Swachh Bharat Mission is a part of the urban renewable mission launched by the government of India to improve the quality of life in urban slums. It was launched in 2014 to improve sanitary conditions in the country.

Practice Questions

1. Which of these activities are the most significant contributor to water pollution?
(a) Households (b) Farms
(c) Industries (d) Tourism

2. Which of the following is not a cause of air pollution?
(a) Combustion of fossil fuels
(b) Mining activities
(c) Industries
(d) Agricultural runoff

3. Which of the following elements is both a water pollutant and air pollutant?
(a) Sulphates (b) Carbon monoxide
(c) Ammonia (d) Mercury

4. Respiratory diseases are mainly caused by ..... pollution.
(a) land (b) water (c) air (d) noise

5. What % age of total geographical area of India is classified as man-made degraded CWL?
(a) 2.18% (b) 5.88% (c) 7.51% (d) 2.4%

6. Which of the following wastelands have been primarily formed by natural agents?
(a) Barren rocky areas (b) Desertic sands
(c) Steep sloping land (d) All of these

7. Which one of the following rivers is highly polluted?
(a) Brahmaputra (b) Sutlej
(c) Yamuna (d) Godavari

8. Which one of the following diseases is caused by water pollution?
(a) Conjunctivitis (b) Diarrhoea
(c) Respiratory infections (d) Bronchitis

9. Which one of the following is the cause of acid rain?
(a) Water pollution (b) Land pollution
(c) Noise pollution (d) Air pollution

10. Push and pull factors are responsible for
(a) Migration (b) Land degradation
(c) Slums (d) Air pollution

11. Which of these sources are responsible for water pollution?
1. Households 2. Industries
3. Farms and fields 4. Tourism

Codes
(a) 1, 2 and 4 (b) 1, 2, 3 and 4
(c) 1, 3 and 4 (d) 1, 2 and 3

12. Which of the following is/are the causes of pollution in Yamuna?
1. Industrial pollution from Kanpur.
2. Domestic waste from Delhi.
3. Extraction of water by Haryana and Uttar Pradesh for irrigation.

Codes
(a) 1, 2 and 3 (b) 2 and 3
(c) 1 and 3 (d) 1 and 2

13. Match the following and choose the correct answer.

List I (Pollution)	List II (Effects)
1. Water Pollution	A. Smog
2. Air Pollution	B. Alkalinity
3. Land Pollution	C. Diarrhoea

Codes

	A	B	C		A	B	C
(a)	1	2	3	(b)	2	3	1
(c)	3	2	1	(d)	1	3	2

14. In which of the following states is the Dharavi stream located?
(a) Karnataka (b) Gujarat
(c) Maharashtra (d) Rajasthan

15. Land degradation is not the result of
(a) Erosion (b) Salinity (c) Alkalinity (d) Forests

16. The waste land in India covers
(a) 7.5% (b) 10.5%
(c) 15.9% (d) 25.15%

17. Hepatitis A is transmitted due to
(a) Water pollution (b) Air pollution
(c) Land pollution (d) Both (a) and (b)

18. Which of the following is the cause of acid rain?
(a) Water pollution (b) Air pollution
(c) Land pollution (d) Noise pollution

19. Which among the following are the common problems of slums?
(a) Unhygienic Conditions (b) Over Crowding
(c) Lack of Sanitation (d) All of these

20. Which of the following is the largest contributor to water pollution in India?
(a) Agriculture (b) Households
(c) Industry (d) Services

ANSWERS

1. (c)	2. (d)	3. (c)	4. (c)	5. (b)	6. (d)	7. (c)	8. (b)	9. (d)	10. (a)
11. (b)	12. (b)	13. (b)	14. (c)	15. (d)	16. (d)	17. (a)	18. (b)	19. (d)	20. (c)