NUMBER SYSTEMs

(Ref: FM-QAH2022007)

I) Fundamentals

1. Express the recurring decimal 0.423333..... in the form of a fraction.

II) Divisibility & Remainders

- 2. Find possible values of 'A', if number 5232A4 is divisible by
 - a) 2
 - b) 3
 - c) 4
 - d) 6
 - e) 8
 - f) 9
 - g) 11
 - h) 12
- 3. What should be the least number added to 54365 to make the sum divisible by 24?
- 4. What should be the least number subtracted from 54365 to make the difference divisible by 36?

Find the remainder when

- 5. 73 + 75 + 78 + 57 + 197 is divided by 36. a) 4 b) 12 c) 6 d) 22
- 6. 73 × 75 × 78 × 57 × 197 is divided by 34. a) 30 b) 18 c) 12 d) 22

III) Unit & Last two digits

- 7. Find the last digit of

 i) 2¹⁴³⁰
 ii) 13⁵⁰³
 iii) 67¹²³
 iv) 19¹⁴⁵⁶
- 8. Find the last digit of
 - i) 13²⁷ + 27¹³ + 54²⁸
 - ii) 113³⁹ × 225²² + 29²⁹
 - iii) $123^{39} \times 117^{41} \times 125^{48} \times 112^{38} + 709^{111}$

IV) Factors

$N = 2^3 \times 3^6 \times 10^3$

- 9. Find the total no. of factors of N
- 10. Find the no. of factors of N which are prime?
- 11. Find the no. of factors of N which are even?
- 12. Find the no. of factors of N are odd?
- 13. Find the sum of factors of N?

For questions (14-19): Find the number of consecutive zeroes at the end of the following numbers.

| 14. | 320 | 0 + 100 |) + 1000 + 40000 + 32000 + 15000000 | | |
|--|-----------|----------------|-------------------------------------|--------|------------|
| | a) | 7 | b) 6 | c) 2 | d) 3 |
| 15. | 11! a) | × 22! × 121 | 33! × 44! × 55! × b) 132 | c) 126 | d) 136 |
| | , | | ., | 0) 120 | u) : : : : |
| 16. 3200 × 1000 × 40000 × 32000 × 16000000 | | | | | |
| | a) | 17 | b) 18 | c) 19 | d) 2 |
| . – | | | | | |
| 17. | /4! | 47 | L) 40 | -) 40 | |
| | a) | 17 | D) 18 | C) 16 | d) 15 |
| 18. | 78! | × 43! | | | |
| | a) | 26 | b) 27 | c) 28 | d) 29 |
| | - / | - | - / | -, - | - / - |
| 19. 101! + 201! | | | | | |
| | a) | 72 | b) 74 | c) 23 | d) 24 |
| | | | | | |

20. 150! / 100!

V) <u>HCF/LCM</u>

- 21. A) The LCM and HCF of $\frac{3}{7}$, $\frac{5}{9}$, $\frac{4}{10}$ and $\frac{8}{9}$ is _____. B) Find the HCF and LCM of 72, 108 and 162.
- 22. The product of the LCM and the HCF of two numbers is 1080. If one of the numbers is 45, the other number is _____.
- 23. Six bells ring together at 11 am and after that they ring at intervals of 5, 10, 15, 20, 25, 30 seconds. How many times will they ring together from 11:00 am to 1:00 pm on the same day?