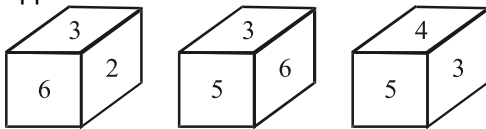


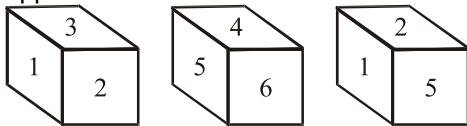
DICES

1. Study the following figure and find out the number opposite to 2.



- (1) 1
(3) 5
- (2) 4
(4) 6

2. Study the following figures and find out the number opposite to 3.



- (1) 6
(3) 5
- (2) 4
(4) 2

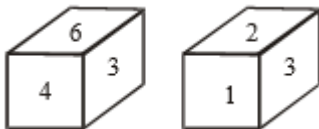
3. Position of Dices is given below :



Identify the number when top is 5 what will be at bottom?

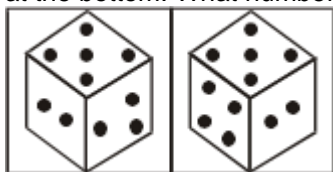
- (1) 6
(3) 4
- (2) 3
(4) 2

4. Which number appear in the face opposite to the face with number 4?



- (1) 6
(3) 1
- (2) 5
(4) 3

5. Two positions of a dice are shown below. When 3 is at the bottom. What number will be at the top?



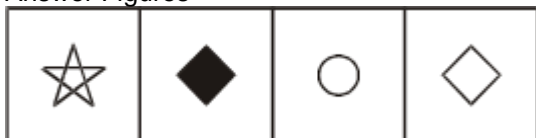
- (1) 6
(3) 4
- (2) 3
(4) 2

6. Two positions of a dice are shown below :



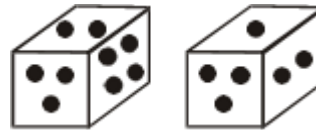
When the heart shape is at the top, what will be at the bottom?

Answer Figures



- (1) (2) (3) (4)

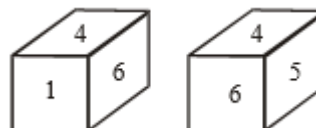
7. Study the two different positions of dice. When the face containing one dot is at bottom then how many dots would be there on the top face?



- (1) 6
(3) 4
- (2) 5
(4) 3

8. Two positions of a dice are shown below. When number 'one' is on the top, what number will be at the bottom?

Question Figures

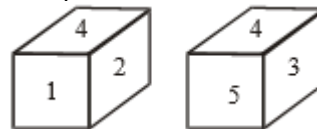


Answer Figures



- (1) (2) (3) (4)

9. Two positions of dice are shown below :



When 3 is at the bottom, which number is at the top?

- (1) 4
(3) 2
- (2) 5
(4) 1

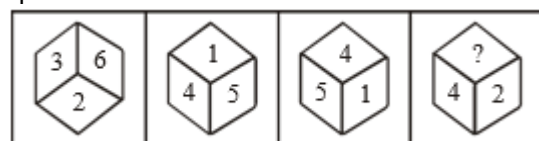
10. Two positions of a dice are shown below :



When '2' is at the bottom, what number will be at the top?

- (1) 3
(3) 1
- (2) 5
(4) 6

11. The following diagram depicts various views of a cube. Each faces has some number, where as in cube 4, one face is blank, From the answer choices select the number that should come in the blank space.



- (1) 1
(3) 6
- (2) 5
(4) 3

CUBES & CUBOID

1. What is the maximum possible number of identical pieces a cube can be cut into by 6 cut?
a) 18 b) 6 c) 27 d) 5
 2. What is the maximum possible number of identical pieces a cube can be cut into by 17 cut?
a) 250 b) 160 c) 270 d) 294
 3. What is the maximum possible number of identical pieces a cube can be cut into by 11 cut?
a) 100 b) 90 c) 84 d) 54
 4. By making at least how many cuts can a cube be cut into 210 smaller pieces without putting the pieces one above another?
a) 18 b) 15 c) 25 d) 5
 5. By making at least how many cuts can a cube be cut into 343 smaller pieces without putting the pieces one above another?
a) 18 b) 30 c) 25 d) 5
 6. By making at least how many cuts can a cube be cut into 1000 smaller pieces without putting the pieces one above another?
a) 18 b) 15 c) 25 d) 27
 7. If total number of pieces (Smaller cubes/cuboids) is 45 then find the possible number of cuts.
a) 8 or 12 b) 7 or 16 c) 5 or 25 d) 9 or 27
 8. Find the minimum number of cuts required to get 50 pieces.
a) 9 b) 10 c) 12 d) 25
 9. 64 small but identical cubes have been put together to form a large cube. How many more such small cubes will be required to cover this large cube completely so as to form a cube?
a) 100 b) 90 c) 84 d) 152
 10. How many cubes of dimensions 1 cm \times 1cm \times 1cm are required to cover a cube of dimensions 7 cm \times 7 cm \times 7 cm completely?
a) 169 b) 294 c) 386 d) 488
- Direction:** How many extra cubes are required to covered a $5 \times 5 \times 5$
11. Fit is suspended in the air
a) 218 b) 90 c) 184 d) 182
 12. It is kept on a table
a) 100 b) 90 c) 196 d) 169
 13. It is kept along the edge of the room
a) 130 b) 156 c) 127 d) 182
 14. It is kept at one of the corners of the room
a) 100 b) 90 c) 84 d) 91
15. How many of the smaller cubes have none of their face coloured?
a) 10 b) 8 c) 4 d) 8
 16. How many of the smaller cubes have exactly three face colored?
a) 10 b) 8 c) 24 d) 8
 17. How many of the smaller cubes have exactly two face colored?
a) 10 b) 8 c) 24 d) 8
 18. How many of the smaller cubes have exactly one face colored?
a) 10 b) 8 c) 24 d) 8
- Direction:** A large cuboid is painted on all six faces with red colour. Now 3,4 and 5 cuts are made in three different directions.
19. How many identical pieces can be formed?
a) 100 b) 120 c) 84 d) 152
 20. How many smaller cuboids have no face painted at all?
a) 100 b) 52 c) 24 d) 15
 21. How many smaller cuboids have exactly one face painted?
a) 100 b) 90 c) 84 d) 52
 22. A cube painted blue on two adjacent faces and red on the faces opposite to the blue faces. The other two faces are left uncoloured. It is then cut into 64 smaller cubes of equal size. How many cubes does not have any face painted?
a) 16 b) 24 c) 32 d) 12
 23. A solid cube of each side 8 cm has been painted red, blue and gray on pairs of opposite faces. It is then cut into cubical blocks of each side 2 cm. How many cubical have at least one gray face painted?
a) 16 b) 32 c) 24 d) 18
 24. Three adjacent sides of a $5 \times 5 \times 5$ cube are painted with yellow colors. If it is cut into 125 small cubes, then how many cube will be there without any painted face.
a) 100 b) 64 c) 80 d) 72
 25. A 512 cube is painted with blue on two faces and green on one face. None of the pairs of opposite faces have more than one face painted. The cube is cut in to smaller identical cubes. How many smaller cubes have none of its face painted?
a) 320 b) 336 c) 363 d) 343

Direction: 64 Symmetrical small cubes are put together to form a big cube. This cube is now coloured green on all its surfaces.

Direction: A cube has all the six faces painted six different colour Red, Blue, Green, Violet yellow, black each face being painted with only one colour. The cube is placed on the table with the violet face touching the table top. The cube is cut into 60 identical pieces by making the least number of cuts possible where all the cuts are parallel to the faces of the cube; the least

number of cuts are made parallel to the red face, while the maximum number of cuts are made Parallel to the black face. Green and blue faces are opposite each other. Red face is not opposite the violet face.

26. How many small pieces have black colour on their faces?
(a) 12 (b) 15 (c) 30 (d) 24
27. How many small pieces have at least two different colours on their faces?
(a) 24 (b) 32 (c) 40 (d) 44
28. How many small pieces have only one face painted?
(a) 10 (b) 12 (c) 22 (d) 24
29. How many small pieces have-no colour on their faces?
(a) 6 (b) 8 (c) 14 (d) 24

Directions: In a cube, one pair of opposite faces is painted in Red, the second pair of opposite faces is painted in Green and the third pair is painted in Blue. This cube is now cut into 729 smaller but identical cubes

30. How many small cubes are there without any face painted?
(a) 216 (b) 343 (c) 512 (d) None
31. How many small cubes are there with at least two different colours on their faces?
(a) 84 (b) 104 (c) 96 (d) 92
32. How many small cubes are there with exactly one face painted red?
(a) 18 (b) 96 (c) 98 (d) 72

Directions: There are 343 small cubes of side 1 cm each. These cubes have serial number 1 to 343 written on them. They are arranged to form a larger cube of side 7 cm each. They are arranged in the form of cube keeping the following conditions.

- (i) It starts by creating a bottom layer which has the front row left most cube equals to 1 and then upto 7 to complete the row. The 2nd row behind it will have 8 to 14, 15 to 21 and so on.
- (ii) The second layer will start again in the same manner such that the last number in the topmost corner at the back is 343.
33. What is the sum of all the cubes in the 3rd column of the 2nd layer from front.
a) 1099 b) 798
c) 1156 d) 949
34. What is the sum of all the cubes in the diagonal starting from right most bottom cube and right most top cube at the back?
a) 975 b) 1175
c) 1225 d) 1025
35. What is the sum of all the cubes in the diagonal starting from right most bottom cube and left most top cube at the back?
a) 1158 b) 1204 c) 1076 d) 876
36. What is the sum of all the diagonal cubes in the bottom most layer?
a) 150 b) 646 c) 235 d) 175

Directions: 216 cubes of similar size are arranged in the form of a bigger cube (6 cubes on each side, i.e., 6 x 6 x 6) one cube from a corner is removed and then all the exposed surfaces are painted.

37. How many of the cubes have 0 faces painted?
a) 64 b) 125 c) 27 d) none
38. How many of the cubes have 2 faces painted?
a) 44 b) 45 c) 47 d) 48

Answer Key Dice

1-3	2-3	3-3	4-1	5-3	6-4	7-3	8-2	9-3	10-3
11-1	12-2	13-3	14-4	15-4	16-3	17-4	18-4		

Answer Key Cubes

1-c	2-d	3-a	4-b	5-a	6-d	7-a	8-a	9-d	10-c
11-a	12-d	13-c	14-d	15-b	16-b	17-c	18-c	19-b	20-c
21-d	22-a	23-b	24-c	25-c	26-a	27-b	28-c	29-d	30-c
31-c	32-b	33-a	34-c	35-b	36-d	37-d	38-b		