DIRECTIONS (Qs. 1-4): Read the following informations and answer the questions based on it.

(i) The length, breadth and height of a rectangular piece of wood are 4 cm, 3 cm and 5 cm respectively.
(ii) Opposite sides of 5 cm × 4 cm piece are coloured in red.
(iii) Opposite sides of 4 cm × 3 cm are coloured in blue.
(iv) Rest sides of 5 cm × 3 cm are coloured on green in both sides.
(v) Now the piece of is cut in such a way that cubes of 1 cm × 1 cm × 1 cm will be made.

1. How many cubes shall have all the three colors?
   (a) 8  (b) 10  (c) 12  (d) 14

2. How many cubes shall not have any colour?
   (a) None  (b) 2  (c) 4  (d) 6

3. How many cubes shall have only two colours red and green on their two sides?
   (a) 8  (b) 12  (c) 16  (d) 20

4. How many cubes shall have only one colour?
   (a) 12  (b) 16  (c) 22  (d) 28

DIRECTIONS (Qs. 5-8): A cube is coloured red on all faces. It is cut into 64 smaller cubes of equal size. Now, answer the following questions based on this statement:

5. How many cubes have no face coloured?
   (a) 24  (b) 16  (c) 8  (d) 0

6. How many cubes are there which have only one face coloured?
   (a) 4  (b) 8  (c) 16  (d) 24

7. How many cubes have two red opposite faces?
   (a) 0  (b) 8

8. How many cubes have three faces coloured?
   (a) 24  (b) 16  (c) 16  (d) 24

9. How many cuboids have two faces coloured pink?
   (a) 1  (b) 3  (c) 4  (d) 6

10. How many cuboids have three faces coloured pink?
    (a) 9  (b) 7  (c) 5  (d) 3

11. How many cuboids have three faces coloured blue?
    (a) 4  (b) 2  (c) 1  (d) 0

DIRECTIONS (Qs. 9-11): Three adjacent face, of a cube are coloured blue. The cube is then cut (once horizontally and one vertically) to form four cuboids of equal size, each of these cuboids is coloured pink on all the uncoloured faces and is then cut (as before) into four cuboids of equal size.

9. How many cuboids have two faces coloured pink?
   (a) 1  (b) 3  (c) 4  (d) 6

10. How many cuboids have three faces coloured pink?
    (a) 9  (b) 7  (c) 5  (d) 3

11. How many cuboids have three faces coloured blue?
    (a) 4  (b) 2  (c) 1  (d) 0

DIRECTIONS (Qs. 12-16): Following questions are based on the figures given below which represent different positions of the same dice.

12. Which number lies at the bottom face of the dice (i) ?
    (a) 4  (b) 2  (c) 1  (d) 3

13. Which number lies at the bottom face of the dice (iii)?
    (a) 1  (b) 2  (c) 6  (d) 4

14. Which number lies opposite 6?
    (a) 2  (b) 5
15. Which of the following combinations shows the numbers at the adjacent surfaces of the number 4?
(a) 3, 2  (b) 6, 2  (c) 2, 3  (d) 6, 3

16. Which of the following number does not appear on any one of the adjacent surfaces of the number 3?
(a) 2  (b) 6  (c) 4  (d) 1

17. On the basis of two positions of dice, find what number will be on the opposite face of number 5?

(a) 1  (b) 3  (c) 4  (d) 5

18. From the following positions of dice find which, will come in place of ‘?’

(a) 4  (b) 5  (c) 2  (d) 3

19. Three positions of the same dice are given below. Observe the figures carefully and find which number will come in place of ‘?’

(a) 6  (b) 3  (c) 5  (d) 4

20. Select from the alternative, the box that can be formed by folding the sheet shown in figure (X):

(a) 1  (b) 6  (c) 3  (d) 5

21. Select from the alternative, the box that can be formed by folding the sheet shown in figure (X):
22. How many dots are there on the dice face opposite the one with three dots?

(a) 2
(b) 4
(c) 5
(d) 6

23. Which number is on the face 4, if the four different positions, of a dice are as shown in the figures given below.

(a) 5
(b) 3
(c) 2
(d) 1

24. Six squares are coloured, front and back, red (R), blue (B), yellow (Y), green (G), white (W) and orange (O) and are hinged together as shown in the figure given below. If they are folded to form a cube, what would be the face opposite the white face?

(a) R
(b) G
(c) B
(d) O

25. Three views of a cube following a particular motion are given below:

(a) A only
(b) B only
(c) A and C only
(d) A, B, C, and D

26. What is the letter opposite to A?

(a) H
(b) P
(c) B
(d) M

27. The four different position of dice are given below.

Which number is on the face opposite of 6?

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

28. A cube has six numbers marked 1, 2, 3, 4, 5 and 6 on its faces. Three views of the cube are shown below:

What possible numbers can exist on the two faces marked A and B, respectively on the cube?

(a) 2 and 3
(b) 6 and 1
(c) 1 and 4
(d) 3 and 1
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29. Which letter will be opposite of letter D?
   (a) A       (b) B
   (c) E       (d) F

30. Which symbol appear in place of?
   (a) ×       (b) =
   (c) ÷       (d) Δ

31. Select from alternative, the box that can be formed by folding the sheet shown.

32. Select from alternative, the box that can be formed by folding the sheet shown.

33. Which No. is opposite to 1?
   (a) 4       (b) 6
   (c) 2       (d) 3

34. Four views of a dice have been shown below, which of the following symbols is on the face opposite to the face having the symbol ÷?

35. Choose the box that is similar to the box formed from the given sheet of paper (X).
36. A dice is numbered from 1 to 6 in different ways. If 1 is adjacent to 2, 3 and 5, then which of the following statements is necessarily true?

(a) 4 is adjacent to
(b) 2 is adjacent to 5
(c) 1 is adjacent to 6
(d) 1 is adjacent to 4

37. The four different positions of a dice are given below. The number on the face opposite the face showing 6?

(a) 1
(b) 2
(c) 4
(d) 5

38. Choose the box that is similar to the box formed from the given sheet of paper (X).

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

39. Choose the box that is similar to the box formed from the given sheet of paper (X).

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

40. Choose the cube that will be formed by folding the sheet of paper shown in the problem figure.

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

41. Two positions of a dice are shown below. If 1 is at the bottom, which number will be on top?

(a) 4
(b) 3
(c) 8
(d) 5
42. Four positions of a dice are given below, Identify the number at the bottom when top is 6.

Question figures

(a) 1
(b) 3
(c) 4
(d) 5

ANSWER KEY

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1 | (a) | 6 | (d) | 11 | (c) | 16 | (b) | 21 | (b) | 26 | (a) | 31 | (a) | 36 | (a) | 41 | (b) |
| 2 | (d) | 7 | (a) | 12 | (a) | 17 | (c) | 22 | (c) | 27 | (a) | 32 | (c) | 37 | (c) | 42 | ?  |
| 3 | (b) | 8 | (c) | 13 | (a) | 18 | (d) | 23 | (d) | 28 | (d) | 33 | (a) | 38 | (d) |
| 4 | (c) | 9 | (d) | 14 | (c) | 19 | (a) | 24 | (d) | 29 | (a) | 34 | (a) | 39 | (d) |
| 5 | (c) | 10 | (a) | 15 | (d) | 20 | (a) | 25 | (a) | 30 | (a) | 35 | (c) | 40 | (b) |

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