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2011-2024

for

PRELIMS 2025



RAM MOHAN PANDEY

M.Sc. Mathematics, IIT Roorkee

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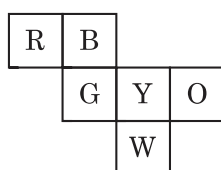
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Previous Year Questions

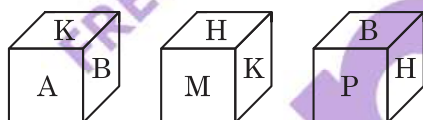
1. Six squares are coloured, front and back, red (R), blue (B), yellow (Y), green (G), white (W) orange (O) and are hinged together as shown in the figure below. If they were folded to form a cube, what would be the face opposite to white face ?



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

[CSAT 2012]

2. The views of a cube following a particular motion are given below:

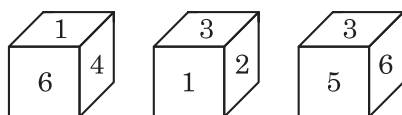


What is the letter opposite to A ?

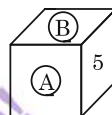
- (a) H
(b) P
(c) B
(d) M

[CSAT 2012]

3. 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 number 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

[CSAT 2013]

4. Each of the six different faces of a cube has been coated with a different colour *i.e.*, V, I, B, G, Y and O. Following information is given:

- Colours Y, O and B are on adjacent faces.
 - Colours I, G and Y are on adjacent faces.
 - Colours B, G and Y are on adjacent faces.
- Which is the colour of the face opposite to the face coloured with O ?

- (a) B (b) V
(c) G (d) I

[CSAT 2015]

5. A cube has all its faces painted with different colours. It is cut into smaller cubes of equal sizes such that the side of the small cube is one-fourth the big cube. The number of small cubes with only one of the sides painted is

- (a) 32 (b) 24
(c) 16 (d) 8

[CSAT 2016]

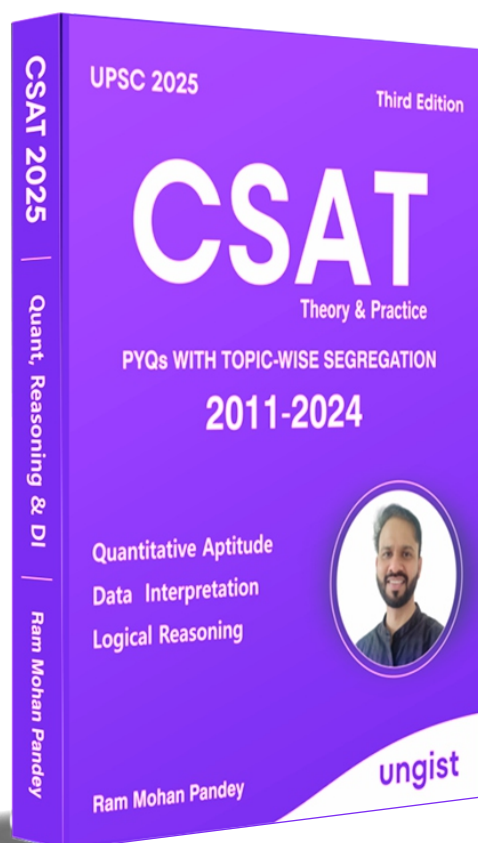
6. The outer surface of a $4\text{ cm} \times 4\text{ cm} \times 4\text{ cm}$ cube is painted completely in red. It is sliced parallel to the faces to yield sixty four $1\text{ cm} \times 1\text{ cm} \times 1\text{ cm}$ small cubes. How many small cubes do not have painted faces ?

- (a) 8
(b) 16
(c) 24
(d) 36

[CSAT 2017]

You may refer to the ungist **CSAT Practice Book**
for detailed solutions of PYQs

CSAT Practice Book, Third Edition *for* UPSC Prelims 2025



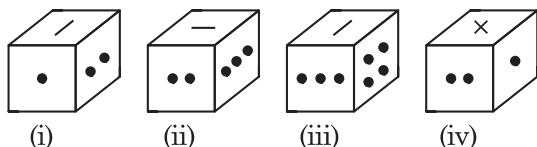
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Directions for the following 3 (three) items:

Rotated positions of a single solid are shown below. The various faces of the solid are marked with different symbols like dots, cross and line. Answer the three items that follow the given figures.



7. What is the symbol on the face opposite to that containing a single dot ?
(a) Four dots
(b) Three dots
(c) Two dots
(d) Cross
[CSAT 2018]
8. What is the symbol on the face opposite to that containing two dots ?
(a) Single dot
(b) Three dots
(c) Four dots
(d) Line
[CSAT 2018]
9. What is the symbol on the face opposite to that containing the cross ?
(a) Single dot
(b) Two dots
(c) Line
(d) Four dots
[CSAT 2018]
10. A solid cube of 3 cm side, painted on all its faces, is cut up into small cubes of 1 cm side. How many of the small cubes will have exactly two painted faces ?
(a) 12
(b) 8
(c) 6
(d) 4
[CSAT 2018]

11. A solid cube is painted yellow, blue and black such that opposite faces are of same colour. The cube is then cut into 36 cubes of two different sizes such that 32 cubes are small and the other four cubes are big. None of the faces of the bigger cubes is painted blue. How many cubes have only one face painted ?
(a) 4
(b) 6
(c) 8
(d) 10
[CSAT 2019]
12. Each face of a cube can be painted in black or white colours. In how many different ways can the cube be painted ?
(a) 9
(b) 10
(c) 11
(d) 12
[CSAT 2019]
13. 125 identical cubes are arranged in the form of a cubical block. How many cubes are surrounded by other cubes from each side ?
(a) 27
(b) 25
(c) 21
(d) 18
[CSAT 2023]
14. A cuboid of dimensions 7 cm × 5 cm × 3 cm is painted red, green and blue colour on each pair of opposite faces of dimensions 7 cm × 5 cm, 5 cm × 3 cm, 7 cm × 3 cm respectively. Then the cuboid is cut and separated into various cubes each of side length 1 cm. Which of the following statements is/are correct ?
1. There are exactly 15 small cubes with no paint on any face.
2. There are exactly 6 small cubes with exactly two faces, one painted with blue and the other with green.
Select the correct answer using the code given below :
(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2
[CSAT 2023]
15. What is the least possible number of cuts required to cut a cube into 64 identical pieces?
(a) 8
(b) 9
(c) 12
(d) 1
[CSAT 2024]

ANSWER KEY

- | | | | | | | | |
|--------|--------|--------|--------|---------|---------|---------|---------|
| 1. (c) | 3. (a) | 5. (b) | 7. (b) | 9. (c) | 11. (c) | 13. (a) | 15. (b) |
| 2. (a) | 4. (c) | 6. (a) | 8. (c) | 10. (a) | 12. (b) | 14. (a) | |

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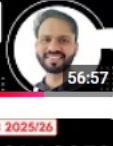
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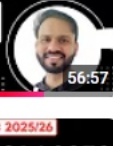
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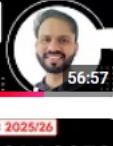
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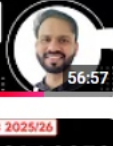
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