# Central Board of Secondary Education

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| **Question Paper Name :** | JEE Main 2017 Paper 2 (B.Arch/B.Plan) Apr 2 Single sitting (Offline) |
| **Subject Name :** | Paper 2 (B.Arch/B.Plan) |
| **Duration :** | 180 |
| **Total Marks :** | 390 |

## Paper 2 (B.Arch/B.Plan)

## Mathematics

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|---|---|
| **Section Number :** | 1 |
| **Number of Questions :** | 30 |
| **Number of Questions to be attempted :** | 30 |
| **Section Marks :** | 120 |

**Question Number : 1 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

If $A$ and $B$ be two finite sets such that the total number of subsets of $A$ is 960 more than the total number of subsets of $B$, then $n(A) - n(B)$ (where $n(X)$ denotes the number of elements in set $X$) is equal to :

**Options :**

1. 2

2. 3

3. 4

4. 6

**Question Number : 2 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

If $\lambda_1$ and $\lambda_2$ are the two values of $\lambda$ such that the roots $\alpha$ and $\beta$ of the quadratic equation, $\lambda(x^2 - x) + x + 5 = 0$ satisfy $\frac{\alpha}{\beta} + \frac{\beta}{\alpha} + \frac{4}{5} = 0$, then $\frac{\lambda_1}{\lambda_2^2} + \frac{\lambda_2}{\lambda_1^2}$ is equal to :

**Options :**

1. 536

2. 512

3. 504

4. 488

**Question Number : 3 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

If $(x + iy)^2 = 7 + 24i$, then a value of $(7 + \sqrt{-576})^{\frac{1}{2}} - (7 - \sqrt{-576})^{\frac{1}{2}}$ is :

**Options :**

1. $-3i$

2. $2i$

3. $6$

4. $-6i$

**Question Number : 4 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

Let S be the set of all real values of 'a' for which the following system of linear equations

$$ax + 2y + 5z = 1$$
$$2x + y + 3z = 1$$
$$3y + 7z = 1$$

is consistent. Then the set S is :

**Options :**

1. equal to **R**

2. equal to **R** – {1}

3. equal to {1}

4. an empty set

**Question Number : 5 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

For all real numbers $x$, $y$ and $z$, the determinant

$$\begin{vmatrix} 2x & xy - xz & y \\ 2x + z + 1 & xy - xz + yz - z^2 & 1 + y \\ 3x + 1 & 2xy - 2xz & 1 + y \end{vmatrix}$$ is equal to :

**Options :**

1. zero

2. $(x - y)(y - z)(z - x)$

3. $(x - yz)(y - z)$

4. $(y - xz)(z - x)$

**Question Number : 6 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

An urn contains 5 red, 4 black and 3 white marbles. Then the number of ways in which 4 marbles can be drawn from it so that at most 3 of them are red, is :

**Options :**

1. 455

2. 460

3. 490

4. 495

**Question Number : 7 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

If the digits at ten's and hundred's places in $(11)^{2016}$ are $x$ and $y$ respectively, then the ordered pair $(x, y)$ is equal to :

**Options :**

1. $(1,6)$

2. $(6,1)$

3. $(8,1)$

4. $(1,8)$

**Question Number : 8 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

Let $a_1, a_2, a_3, a_4, a_5$ be a G.P. of positive real numbers such that the A.M. of $a_2$ and $a_4$ is 117 and the G.M. of $a_2$ and $a_4$ is 108. Then the A.M. of $a_1$ and $a_5$ is :

**Options :**

1. 108

2. 117

3. 144.5

4. 145.5

**Question Number : 9 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

If the sum of the first 15 terms of the series $3 + 7 + 14 + 24 + 37 + \ldots$ is 15 k, then k is equal to :

**Options :**

1. 122

2. 81

3. 119

4. 126

**Question Number : 10 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

$\lim_{x \to 0} \frac{\log(\sin 7x + \cos 7x)}{\sin 3x}$ equals :

**Options :**

1. $\frac{7}{3}$

2. $\frac{14}{3}$

3. $\frac{1}{3}$

4. $\frac{11}{3}\log 7$

**Question Number : 11 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

If the function $f : \mathbf{R} \to \mathbf{R}$, defined by

$$f(x) = \begin{cases} ax, & x < 2 \\ ax^2 - bx + 3, & x \geq 2 \end{cases}$$

is differentiable, then the value of $f'(-3) + f'(3)$ is equal to :

**Options :**

1. 3

2. 4

3. $\frac{15}{2}$

4. 0

**Question Number : 12 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

The sum of the abscissae of the points where the curves, $y = kx^2 + (5k + 3)x + 6k + 5$, ($k \in \mathbf{R}$), touch the $x$-axis, is equal to :

**Options :**

1. $-\frac{19}{3}$

2. $-\frac{10}{3}$

3. $\frac{5}{3}$

4. $-\frac{4}{3}$

**Question Number : 13 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

Water is running into an underground right circular conical reservoir, which is 10 m deep and radius of its base is 5 m. If the rate of change in the volume of water in the reservoir is $\frac{3}{2}\pi$ $m^3$ /min., then the rate (in m/min) at which water rises in it, when the water level is 4 m, is :

**Options :**

1. $\frac{3}{8}$

2. $\frac{1}{8}$

3. $\frac{1}{4}$

4. $\frac{3}{2}$

**Question Number : 14 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

The integral $\int \frac{x+2}{(x^2+3x+3)\sqrt{x+1}}dx$ is equal to :

(where C is a constant of integration)

**Options :**

1. $\frac{1}{\sqrt{3}}\tan^{-1}\left[\frac{x}{\sqrt{3(x+1)}}\right]+C$

2. $\frac{2}{\sqrt{3}}\tan^{-1}\left[\frac{x}{\sqrt{3(x+1)}}\right]+C$

3. $\frac{2}{\sqrt{3}}\cot^{-1}\left[\frac{x}{\sqrt{x+1}}\right]+C$

4. $\frac{1}{\sqrt{3}}\cot^{-1}\left[\frac{x\sqrt{3}}{\sqrt{x+1}}\right]+C$

**Question Number : 15 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

The integral $\int_{\pi/24}^{5\pi/24} \frac{dx}{1+\sqrt[3]{\tan 2x}}$ is equal to :

**Options :**

1. $\frac{\pi}{3}$

2. $\frac{\pi}{12}$

3. $\frac{\pi}{6}$

4. $\frac{\pi}{18}$

**Question Number : 16 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

If the line, $y = mx$, bisects the area of the region

$\{(x,y) : 0 \le x \le \frac{3}{2},\ 0 \le y \le 1+4x-x^2\}$, then m equals :

**Options :**

1. $\frac{9}{8}$

2. $\frac{13}{3}$

3. $\frac{13}{6}$

4. $\frac{39}{16}$

**Question Number : 17 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

The order and the degree of the differential equation of all ellipses with centre at the origin, major axis along $x$-axis and eccentricity $\frac{\sqrt{3}}{2}$ are, respectively :

**Options :**

1. 1, 1

2. 2, 1

3. 1, 2

4. 2, 2

**Question Number : 18 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

If an equilateral triangle, having centroid at the origin, has a side along the line, $x + y = 2$, then the area (in sq. units) of this triangle is :

**Options :**

1. 6

2. $6\sqrt{3}$

3. $\frac{9}{2}\sqrt{3}$

4. $3\sqrt{6}$

**Question Number : 19 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

The equation of the circle, which is the mirror image of the circle, $x^2 + y^2 - 2x = 0$, in the line, $y = 3 - x$ is :

**Options :**

1. $x^2 + y^2 - 6x - 8y + 24 = 0$

2. $x^2 + y^2 - 8x - 6y + 24 = 0$

3. $x^2 + y^2 - 4x - 6y + 12 = 0$

4. $x^2 + y^2 - 6x - 4y + 12 = 0$

**Question Number : 20 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

The product of the perpendiculars drawn from the foci of the ellipse, $\frac{x^2}{9} + \frac{y^2}{25} = 1$ upon the tangent to it at the point $(\frac{3}{2}, \frac{5\sqrt{3}}{2})$, is :

**Options :**

1. 9

2. $\frac{189}{13}$

3. 18

4. $3\sqrt{13}$

**Question Number : 21 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

Which one of the following points **does not** lie on the normal to the hyperbola, $\frac{x^2}{16} - \frac{y^2}{9} = 1$ drawn at the point $(8, 3\sqrt{3})$ ?

**Options :**

1. $(13, -\frac{1}{\sqrt{3}})$

2. $(12, \frac{1}{\sqrt{3}})$

3. $(11, \sqrt{3})$

4. $(10, \sqrt{3})$

**Question Number : 22 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

If the shortest distance between the lines $x + 2\lambda = 2y = -12z$, $x = y + 4\lambda = 6z - 12\lambda$ is $4\sqrt{2}$ units, then a value of $\lambda$ is :

**Options :**

1. $2$

2. $\sqrt{2}$

3. $2\sqrt{2}$

4. $\frac{\sqrt{2}}{2}$

**Question Number : 23 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

The perpendicular distance from the point $(3, 1, 1)$ on the plane passing through the point $(1, 2, 3)$ and containing the line, $\vec{r} = \hat{i} + \hat{j} + \lambda(2\hat{i} + \hat{j} + 4\hat{k})$, is :

**Options :**

1. $\frac{1}{\sqrt{11}}$

2. $\frac{4}{\sqrt{41}}$

3. $0$

4. $\frac{3}{\sqrt{11}}$

**Question Number : 24 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

Three vectors $\vec{a}$, $\vec{b}$ and $\vec{c}$ are such that $|\vec{a}| = 1$, $|\vec{b}| = 2$, $|\vec{c}| = 4$ and $\vec{a} + \vec{b} + \vec{c} = \vec{0}$. Then the value of $4\vec{a} \cdot \vec{b} + 3\vec{b} \cdot \vec{c} + 3\vec{c} \cdot \vec{a}$ is equal to :

**Options :**

1. $-68$

2. $-26$

3. $-34$

4. 27

**Question Number : 25 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

Two numbers are selected at random (without replacement) from the first six positive integers. If X denotes the smaller of the two numbers, then the expectation of X, is :

**Options :**

1. $\frac{14}{3}$

2. $\frac{13}{3}$

3. $\frac{7}{3}$

4. $\frac{5}{3}$

**Question Number : 26 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

If A and B are two independent events such that $P(A) = \frac{3}{10}$ and $P(A \cup B) = \frac{4}{5}$, then $P(A \cap B)$ is equal to :

**Options :**

1. $\frac{1}{5}$

2. $\frac{1}{10}$

3. $\frac{3}{14}$

4. $\frac{3}{35}$

**Question Number : 27 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

A bag contains three coins, one of which has head on both sides, another is a biased coin that shows up heads 90% of the time and the third one is an unbiased coin. A coin is taken out from the bag at random and tossed. If it shows up a head, then the probability that it is the unbiased coin, is :

**Options :**

1. $\frac{5}{12}$

2. $\frac{5}{24}$

3. $\frac{1}{3}$

4. $\frac{3}{8}$

**Question Number : 28 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

The value of $\frac{1}{\cos 285^\circ} + \frac{1}{\sqrt{3}\sin 255^\circ}$, is :

**Options :**

1. $2\sqrt{2}$

2. $\frac{4\sqrt{2}}{\sqrt{3}}$

3. $\frac{2\sqrt{2}}{3}$

4. $\sqrt{3}-\sqrt{2}$

**Question Number : 29 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

An observer standing at a point P on the top of a hill near the sea-shore notices that the angle of depression of a ship moving towards the hill in a straight line at a constant speed is $30^{\circ}$. After 45 minutes, this angle becomes $45^{\circ}$. If T (in minutes) is the total time taken by the ship to move to a point in the sea where the angle of depression from P of the ship is $60^{\circ}$, then T is equal to :

**Options :**

1. $45(1+\sqrt{3})$

2. $45(1+\frac{2}{\sqrt{3}})$

3. $45(2+\frac{1}{\sqrt{3}})$

4. $45(1+\frac{1}{\sqrt{3}})$

**Question Number : 30 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

Which one of the following statements is a tautology ?

**Options :**

1. $(p \vee q) \rightarrow q$

2. $p \vee (p \rightarrow q)$

3. $p \vee (q \rightarrow p)$

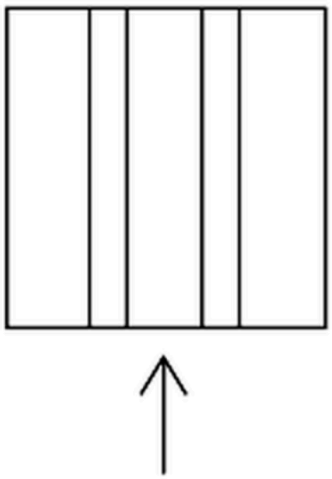
4. $p \rightarrow (p \rightarrow q)$

# Aptitude Test

| | |
|---|---|
| **Section Number :** | 2 |
| **Number of Questions :** | 50 |
| **Number of Questions to be attempted :** | 50 |
| **Section Marks :** | 200 |

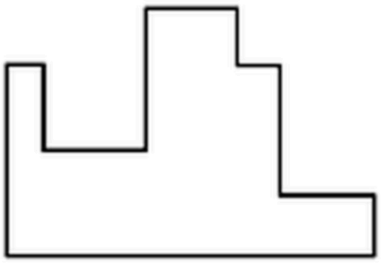
**Question Number : 31 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

Directions : (For Q. No. 31 to 33). The problem figure shows the top view of an object. Identify the correct elevation from amongst the answer figures looking in the direction of the arrow.



**Options :**

1.



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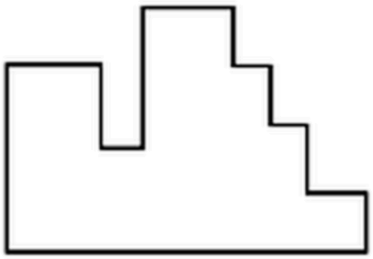
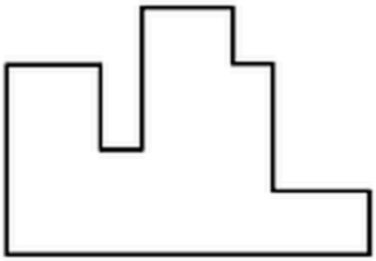
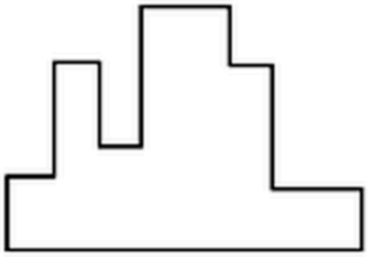


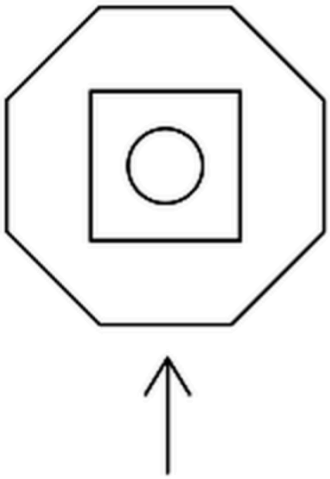
3.



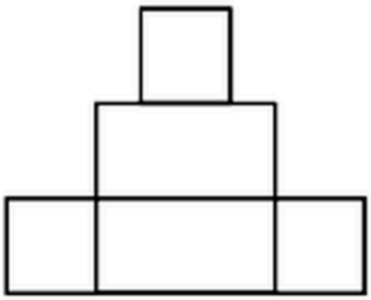
4. 

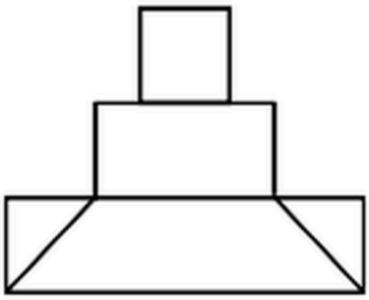
**Question Number : 32 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

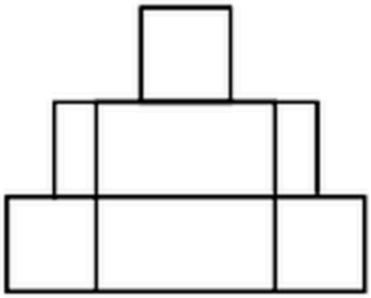
Directions : (For Q. No. 31 to 33). The problem figure shows the top view of an object. Identify the correct elevation from amongst the answer figures looking in the direction of the arrow.

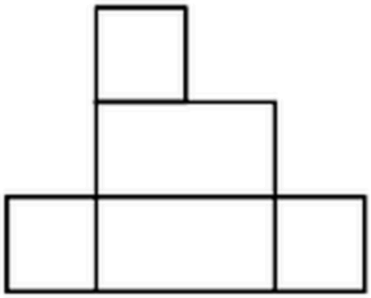


**Options :**

1. 

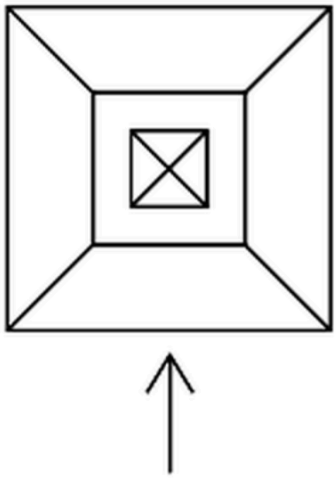
2. 

3. 

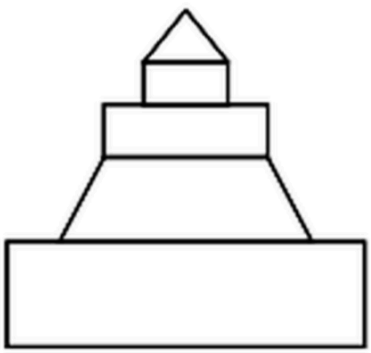
4. 

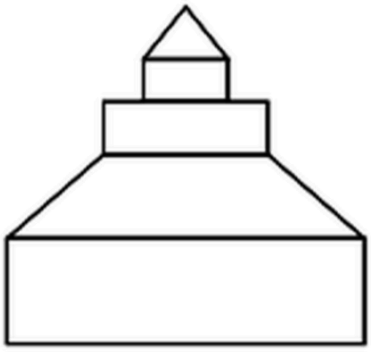
**Question Number : 33 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

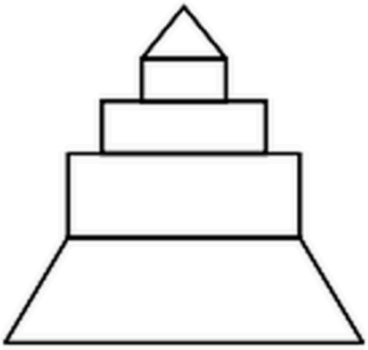
Directions : (For Q. No. 31 to 33). The problem figure shows the top view of an object. Identify the correct elevation from amongst the answer figures looking in the direction of the arrow.

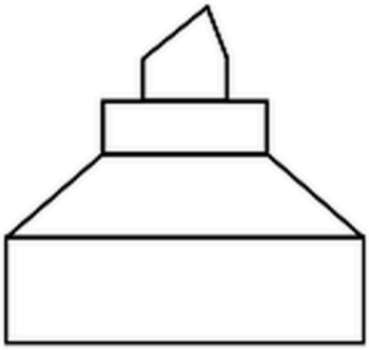


**Options :**

1. 

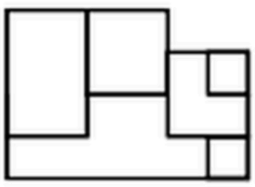
2. 

3. 

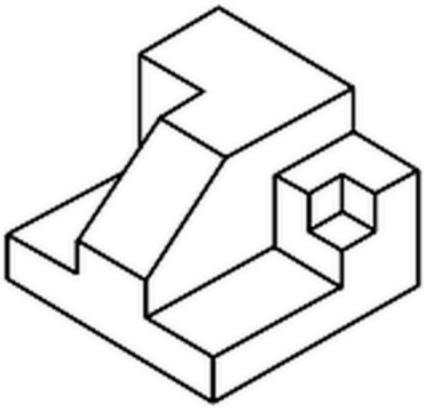
4. 

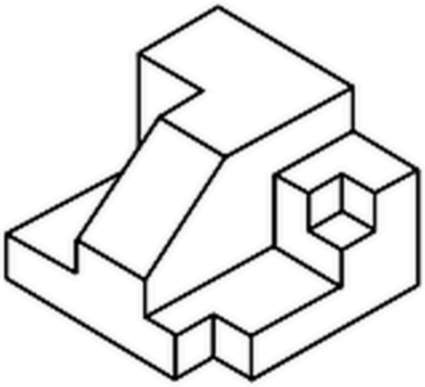
**Question Number : 34 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

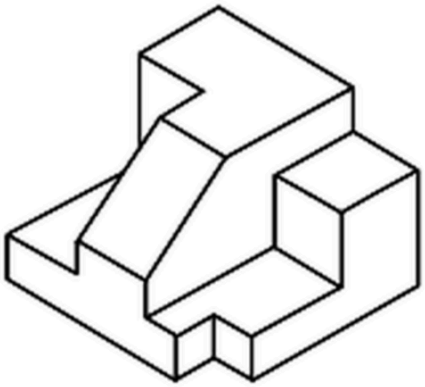
Directions : (For Q. No. 34 to 36). Identify the correct 3-D figure from amongst the answer figures, which has the same elevation, as given in the problem figure on the left.

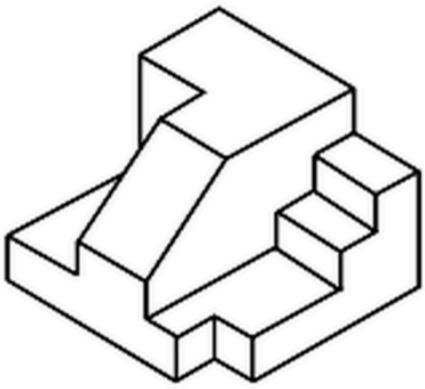


**Options :**

1. 

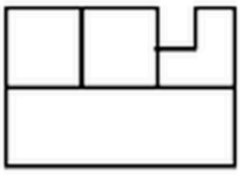
2. 

3. 

4. 

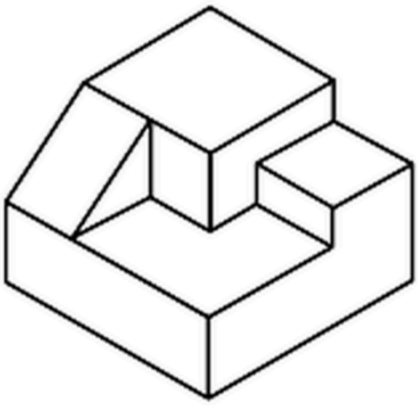
**Question Number : 35 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

Directions : (For Q. No. 34 to 36). Identify the correct 3-D figure from amongst the answer figures, which has the same elevation, as given in the problem figure on the left.



**Options :**

1.



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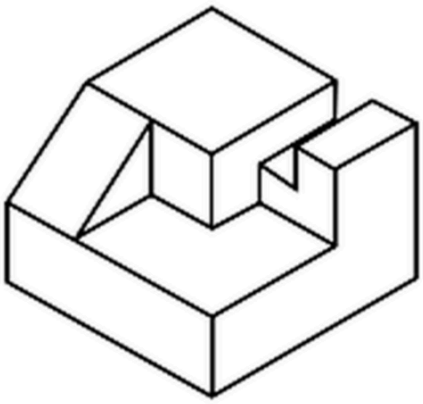

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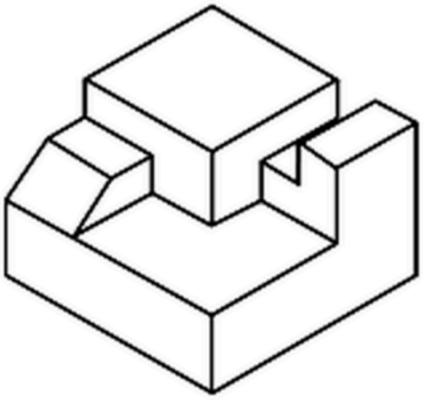
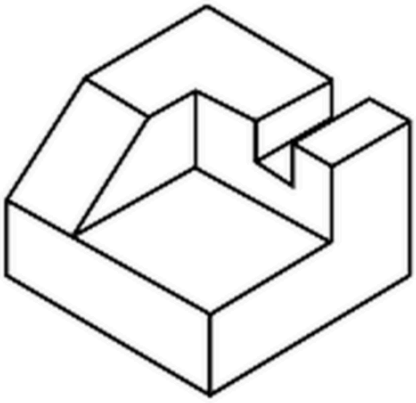




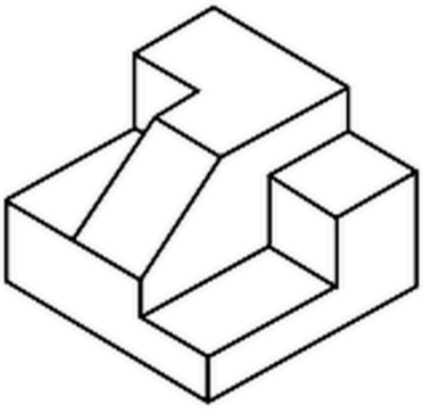
4.

**Question Number : 36 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

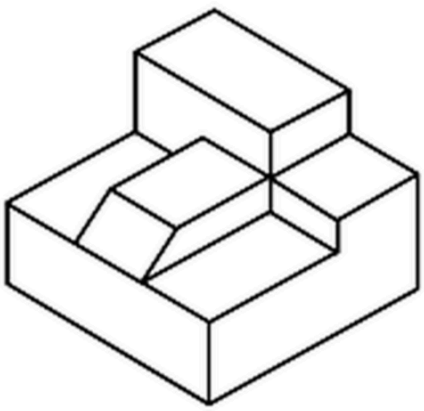
Directions : (For Q. No. 34 to 36). Identify the correct 3-D figure from amongst the answer figures, which has the same elevation, as given in the problem figure on the left.



**Options :**

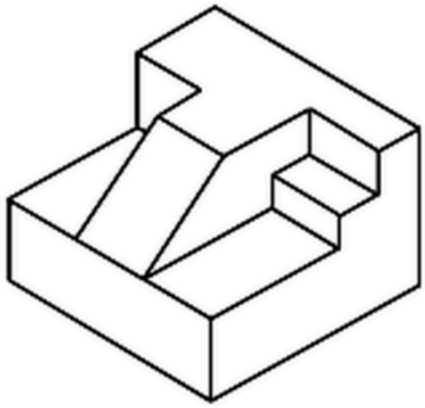


1.

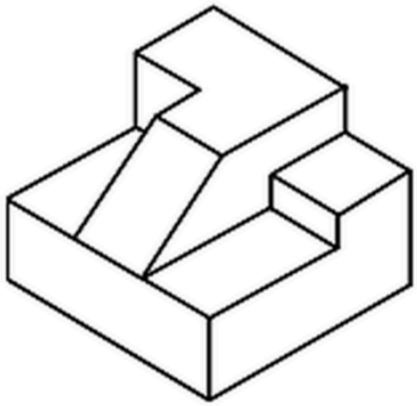


2.

3.

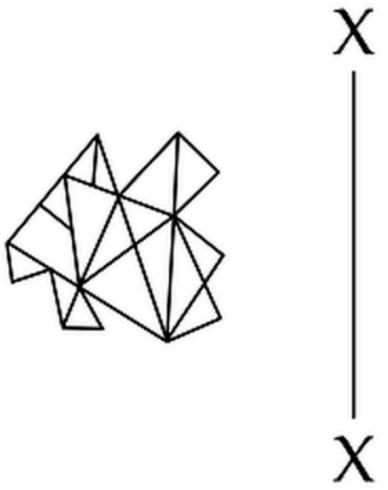


4.

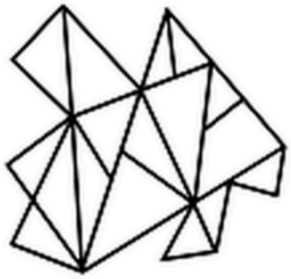


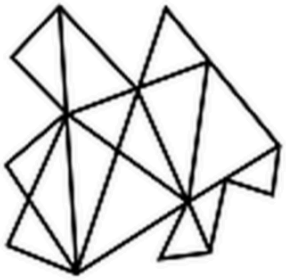
**Question Number : 37 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

Directions : (For Q. No. 37 to 40). Which one of the answer figures is the correct mirror image of the problem figure with respect to X - X ?

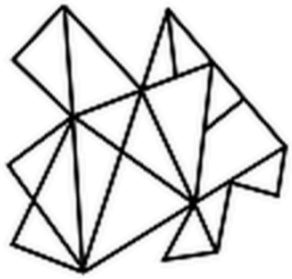


**Options :**

1. 

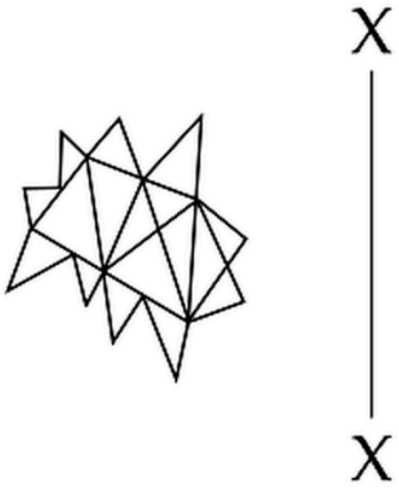
2. 

3. 

4. 

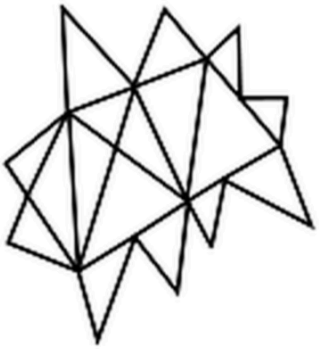
**Question Number : 38 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

Directions : (For Q. No. 37 to 40). Which one of the answer figures is the correct mirror image of the problem figure with respect to X - X ?

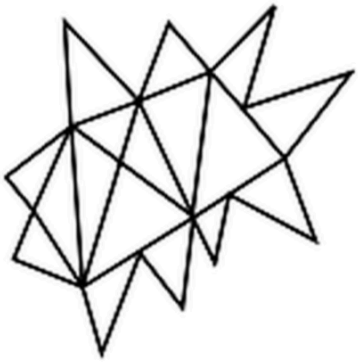


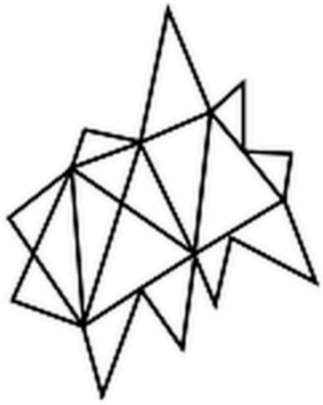

**Options :**

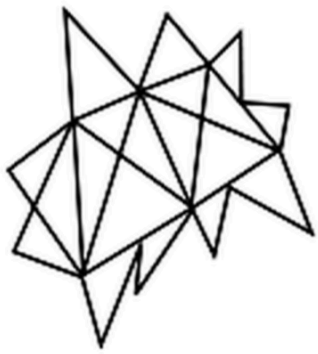
1.



2.

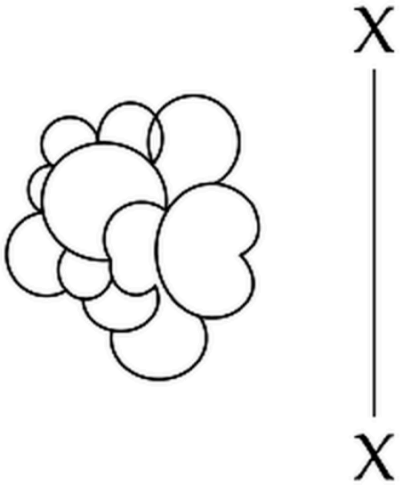


3. 

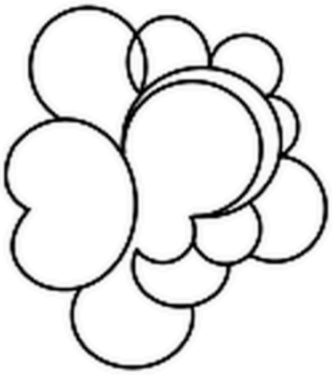
4. 

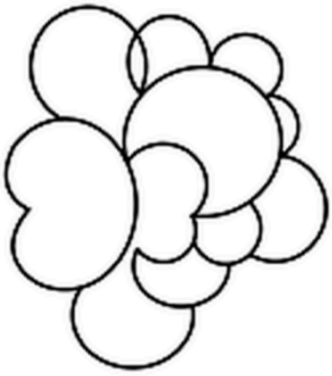
**Question Number : 39 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

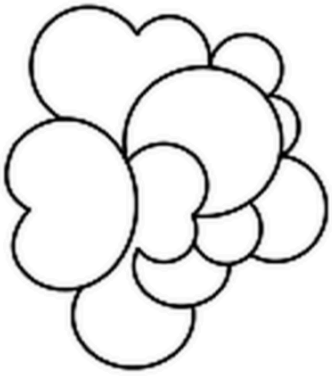
Directions : (For Q. No. 37 to 40). Which one of the answer figures is the correct mirror image of the problem figure with respect to X - X ?

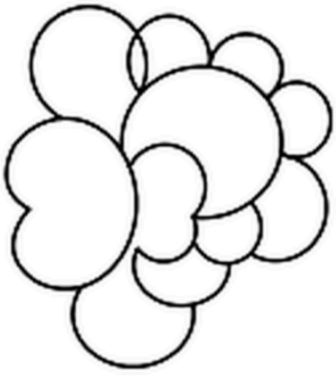


**Options :**

1. 

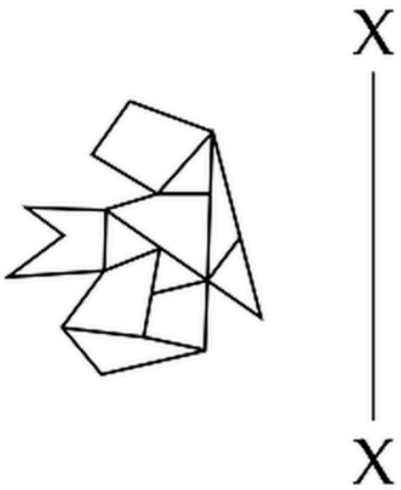
2. 

3. 

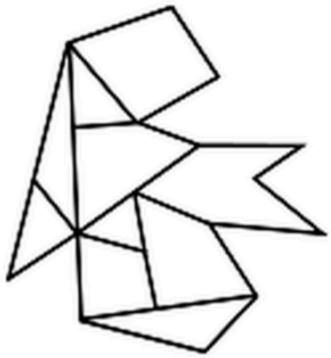
4. 

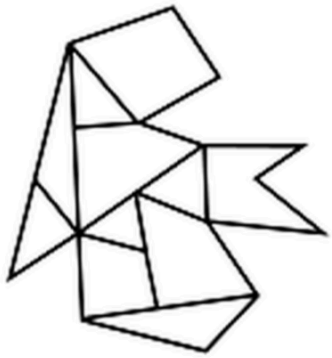
**Question Number : 40 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

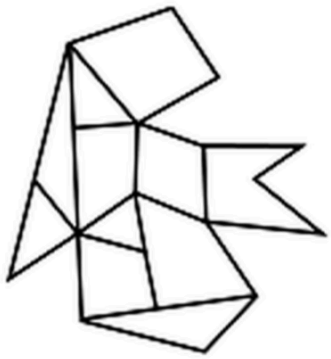
Directions : (For Q. No. 37 to 40). Which one of the answer figures is the correct mirror image of the problem figure with respect to X - X ?

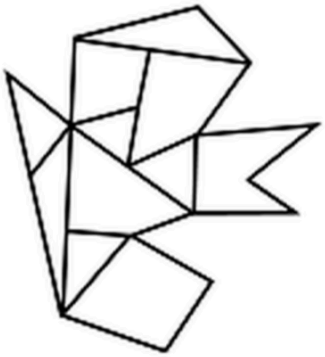



**Options :**

1.


2.


3.


4. 

**Question Number : 41 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

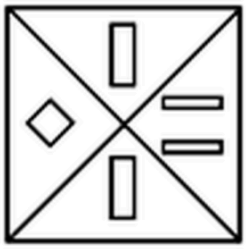
Directions : (For Q. No. 41 and 42). Which one of the answer figures will complete the sequence of the three problem figures ?



**Options :**

1. 

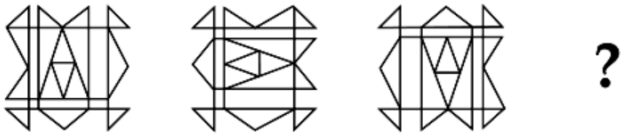
2. 

3. 

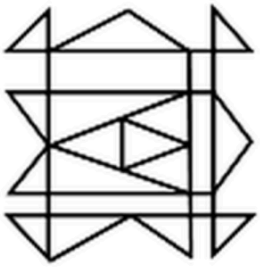
4. 

**Question Number : 42 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

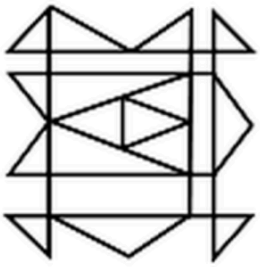
Directions : (For Q. No. 41 and 42). Which one of the answer figures will complete the sequence of the three problem figures ?

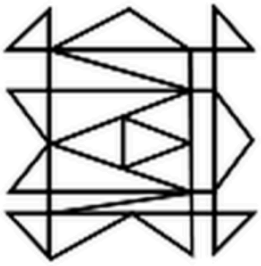


**Options :**

1. 

2. 

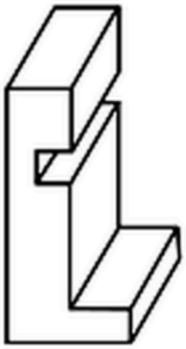
3. 



4.

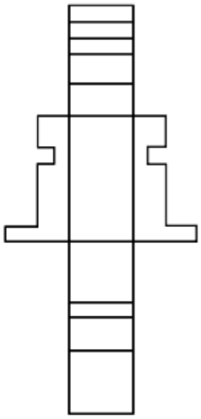
**Question Number : 43 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

Directions : (For Q. No. 43 to 45). Which one of the answer figures shows the correct view of the 3-D problem figure after the problem figure is opened up ?

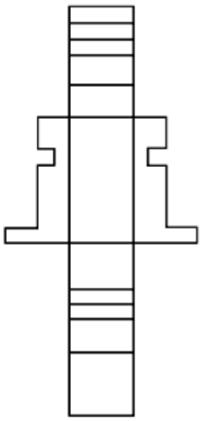


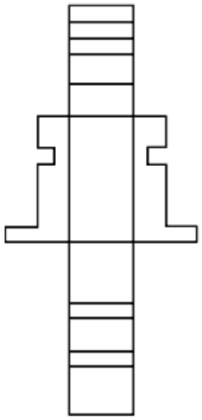
**Options :**

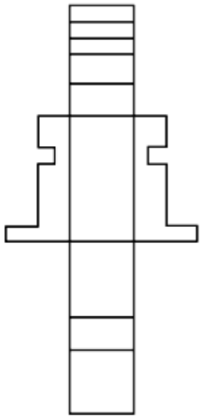
1.



2.

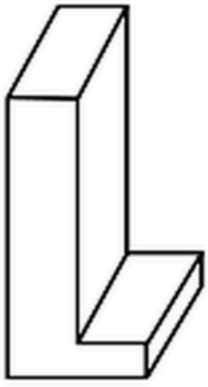


3. 

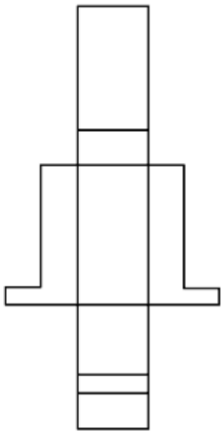
4. 

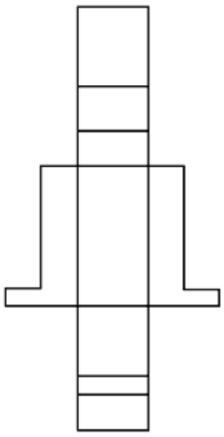
**Question Number : 44 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

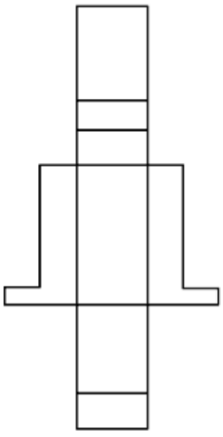
Directions : (For Q. No. 43 to 45). Which one of the answer figures shows the correct view of the 3-D problem figure after the problem figure is opened up ?

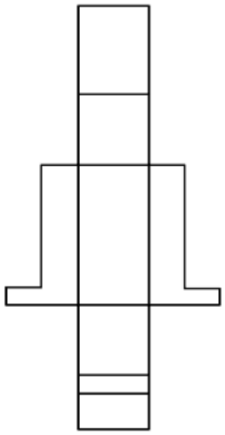


**Options :**

1. 

2. 

3. 

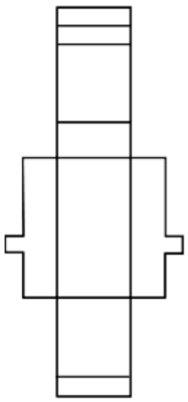
4. 

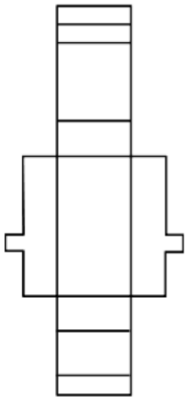
**Question Number : 45 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

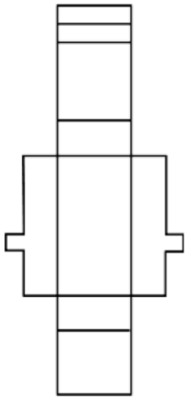
Directions : (For Q. No. 43 to 45). Which one of the answer figures shows the correct view of the 3-D problem figure after the problem figure is opened up ?

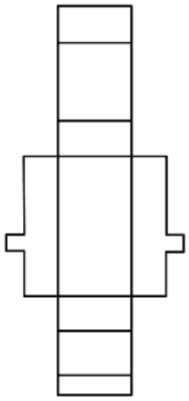


**Options :**

1. 

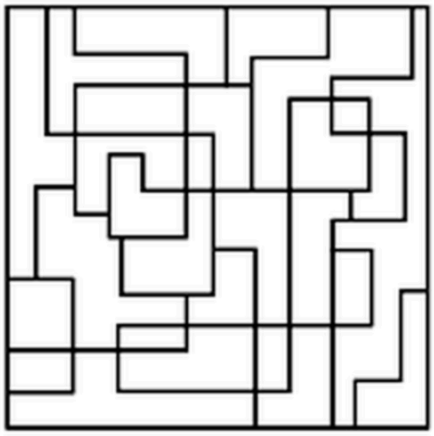
2. 

3. 

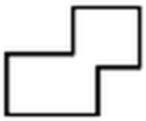
4. 

**Question Number : 46 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

Directions : (For Q. No. 46). One of the following answer figures is hidden in the problem figure in the same size and direction. Select the correct one.



**Options :**

1. 

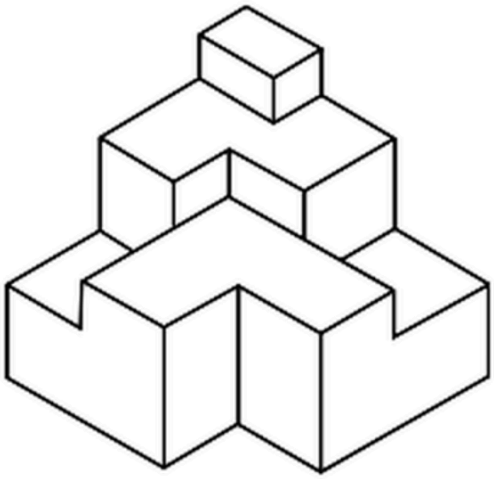
2. 

3. 

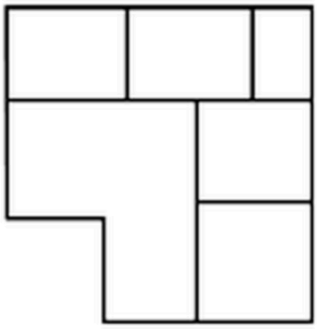
4. 

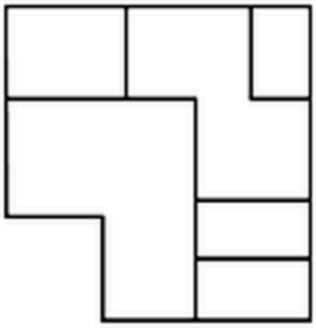
**Question Number : 47 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

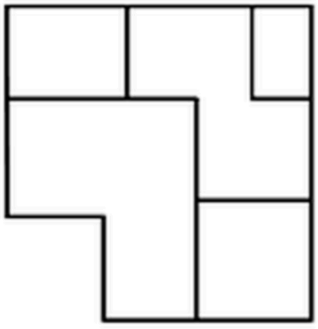
Directions : (For Q. No. 47 to 50). The 3-D figure shows the view of an object. Identify the correct top view from amongst the answer figures.

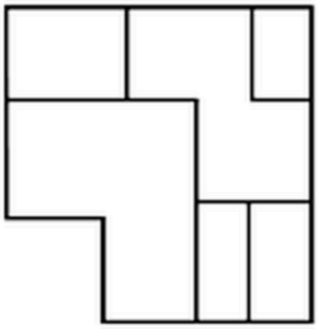


**Options :**

1.


2.


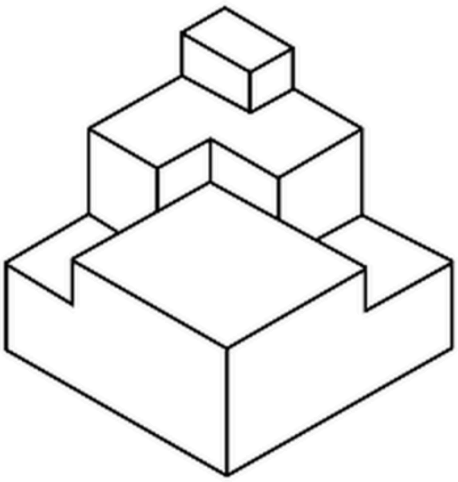
3.




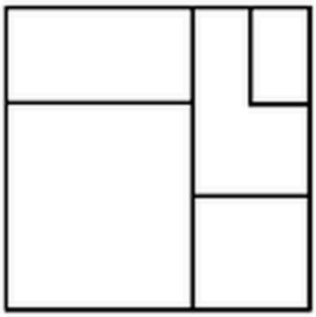
4.

**Question Number : 48 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

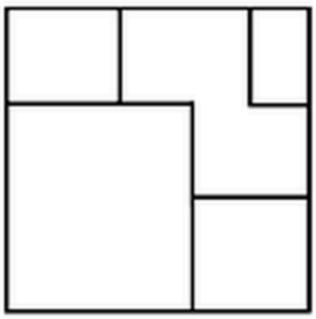
Directions : (For Q. No. 47 to 50). The 3-D figure shows the view of an object. Identify the correct top view from amongst the answer figures.



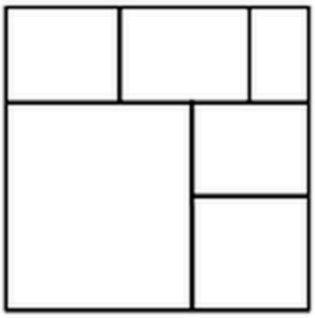
**Options :**



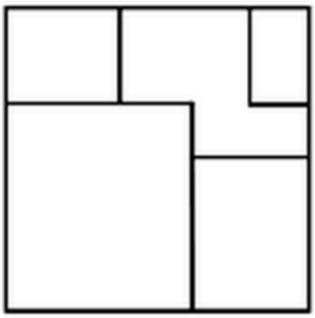
1.



2.



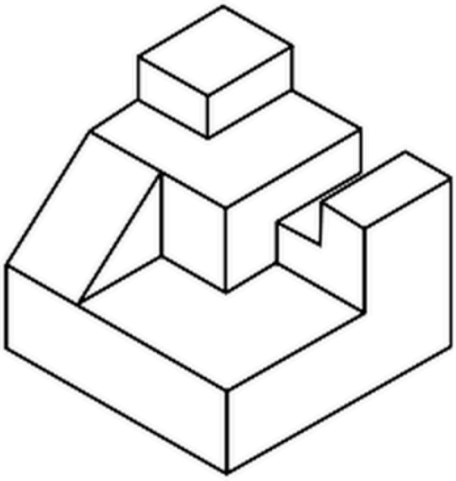
3.



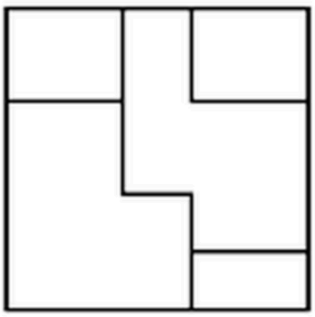
4.

**Question Number : 49 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

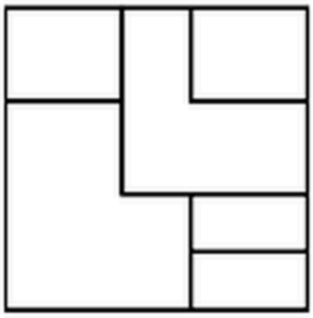
Directions : (For Q. No. 47 to 50). The 3-D figure shows the view of an object. Identify the correct top view from amongst the answer figures.

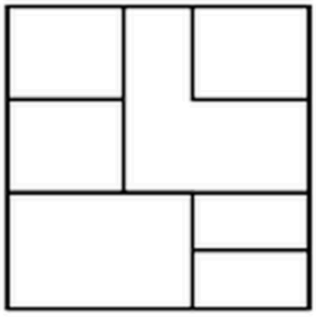


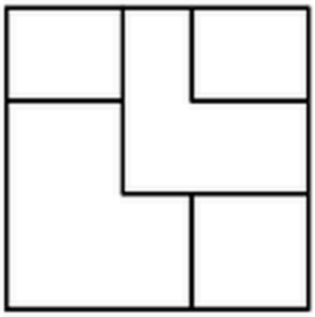
**Options :**



1.

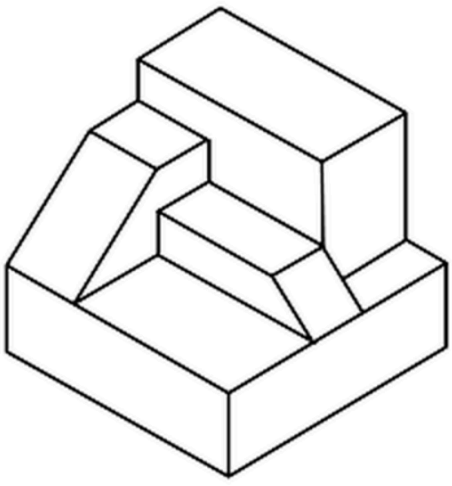
2. 

3. 

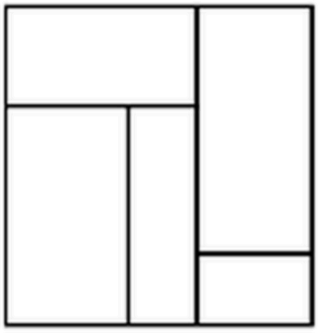
4. 

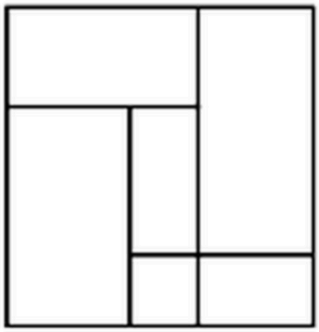
**Question Number : 50 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

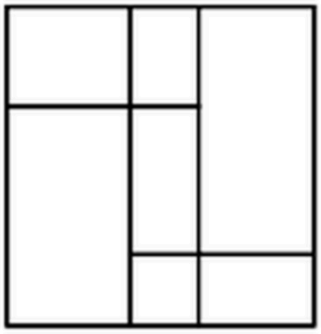
Directions : (For Q. No. 47 to 50). The 3-D figure shows the view of an object. Identify the correct top view from amongst the answer figures.

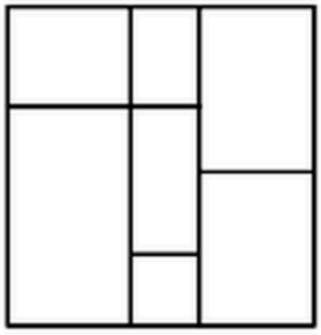


**Options :**

1. 

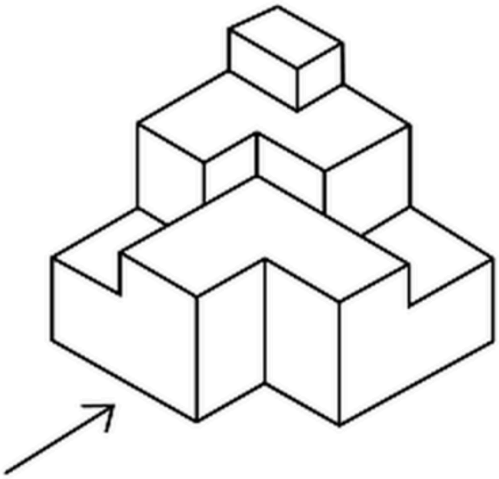
2. 

3. 

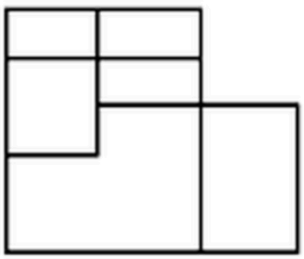
4. 

**Question Number : 51 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

Directions : (For Q. No. 51 to 53). The 3–D problem figure shows a view of an object. Identify the correct front view, from amongst the answer figures, looking in the direction of arrow.



**Options :**

1.


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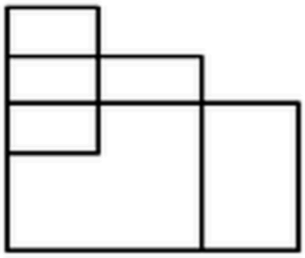
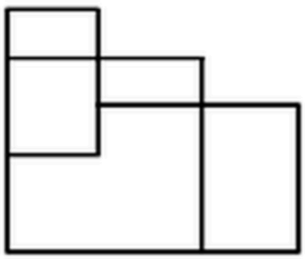
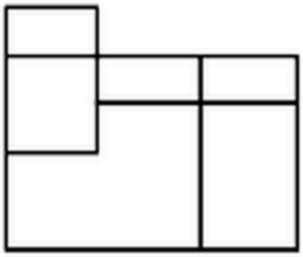


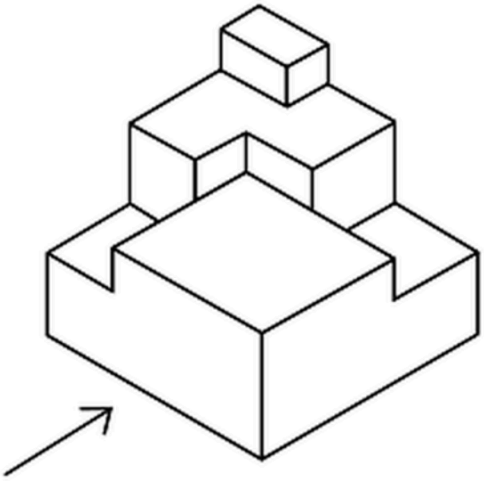
3.




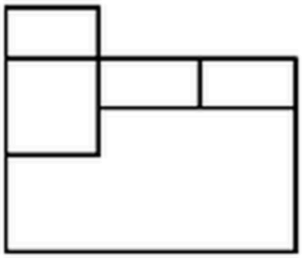
4.

**Question Number : 52 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

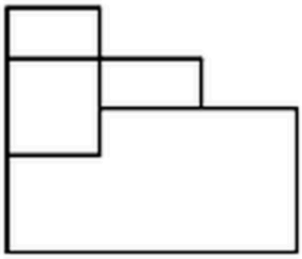
Directions : (For Q. No. 51 to 53). The 3–D problem figure shows a view of an object. Identify the correct front view, from amongst the answer figures, looking in the direction of arrow.



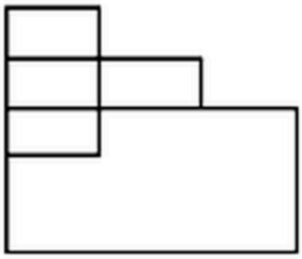
**Options :**

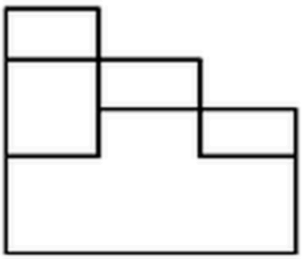


1.



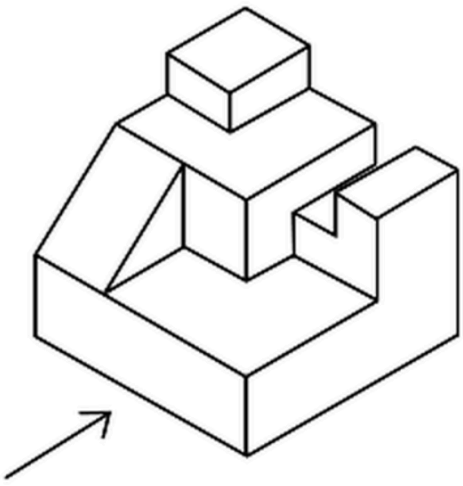
2.

3. 

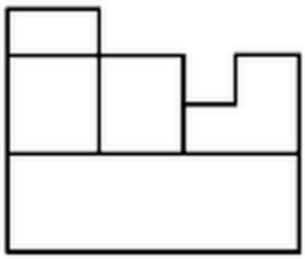
4. 

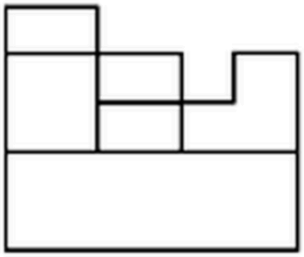
**Question Number : 53 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

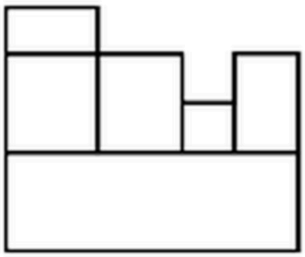
Directions : (For Q. No. 51 to 53). The 3–D problem figure shows a view of an object. Identify the correct front view, from amongst the answer figures, looking in the direction of arrow.

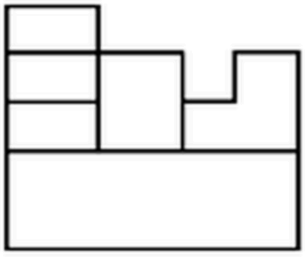


**Options :**

1. 

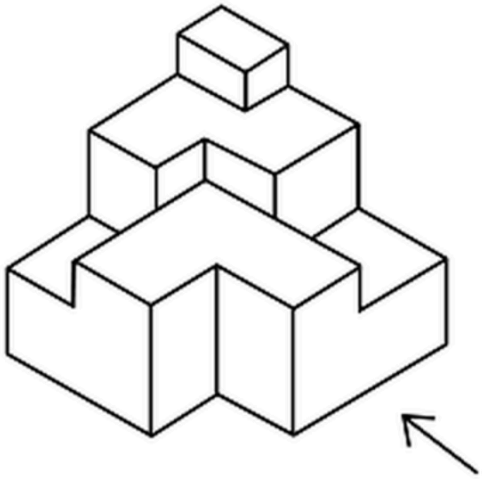
2. 

3. 

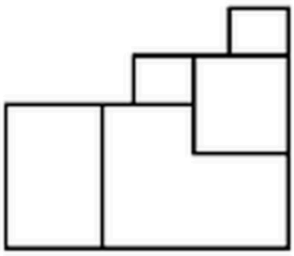
4. 

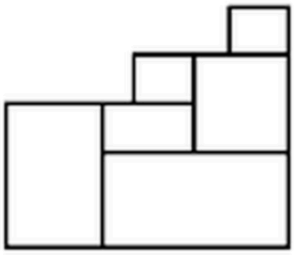
**Question Number : 54 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

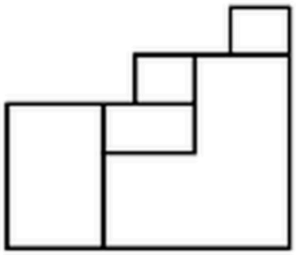
Directions : (For Q. No. 54 to 56). The 3-D problem figure shows a view of an object. Identify the correct front view, from amongst the answer figures, looking in the direction of arrow.

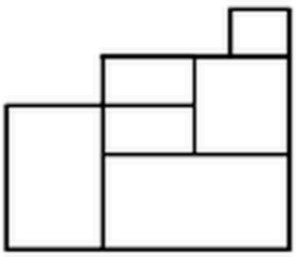


**Options :**

1. 

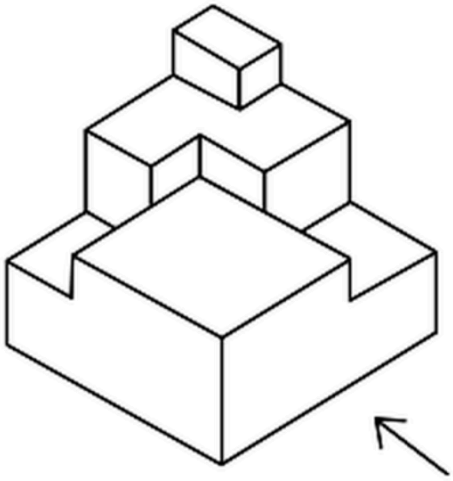
2. 

3. 

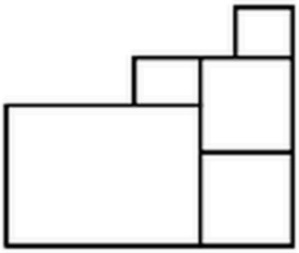
4. 

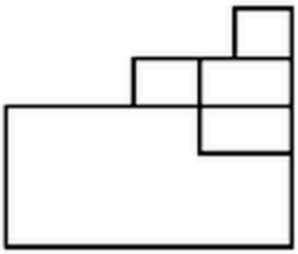
**Question Number : 55 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

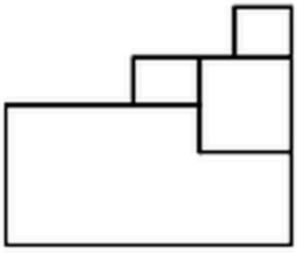
Directions : (For Q. No. 54 to 56). The 3-D problem figure shows a view of an object. Identify the correct front view, from amongst the answer figures, looking in the direction of arrow.

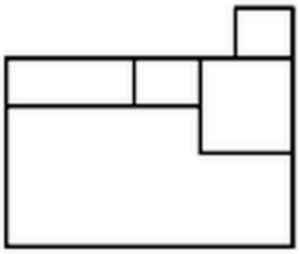


**Options :**

1.


2.


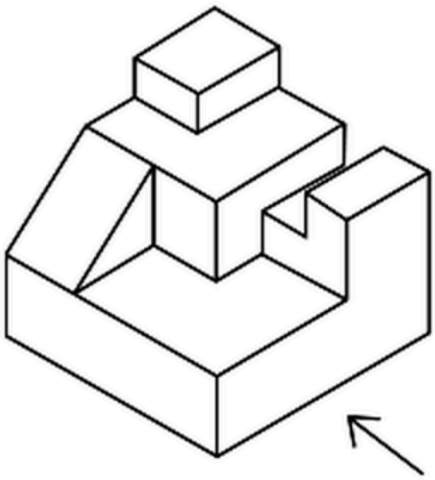
3.




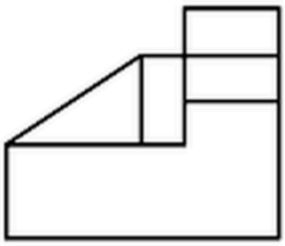
4.

**Question Number : 56 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

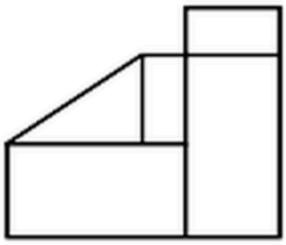
Directions : (For Q. No. 54 to 56). The 3-D problem figure shows a view of an object. Identify the correct front view, from amongst the answer figures, looking in the direction of arrow.



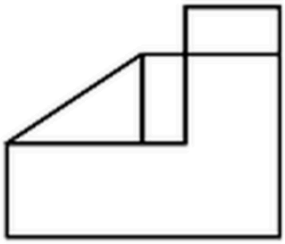
**Options :**

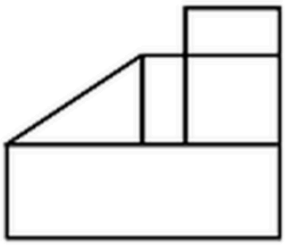


1.



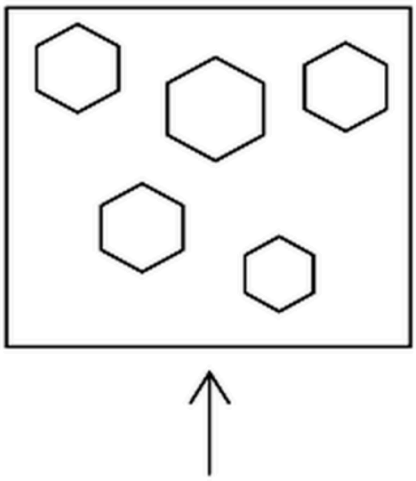
2.

3. 

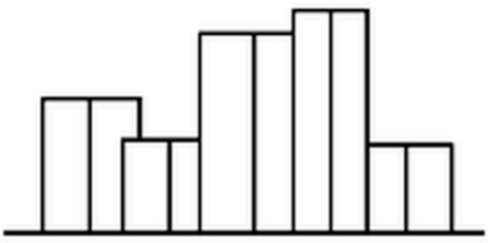
4. 

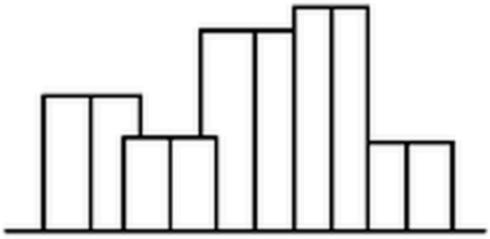
**Question Number : 57 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

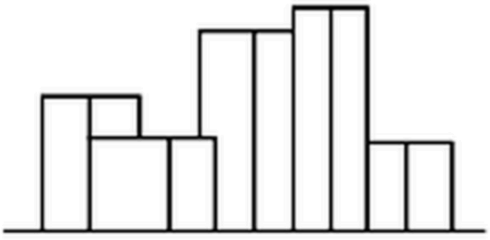
Directions : (For Q. No. 57 to 60). The problem figure shows the top view of objects. Looking in the direction of the arrow, identify the correct elevation, from amongst the answer figures.

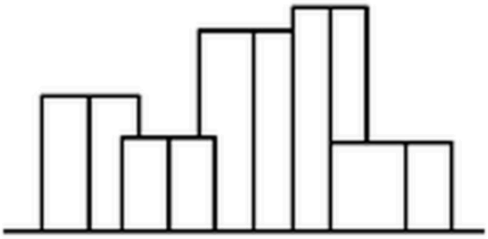


**Options :**

1. 

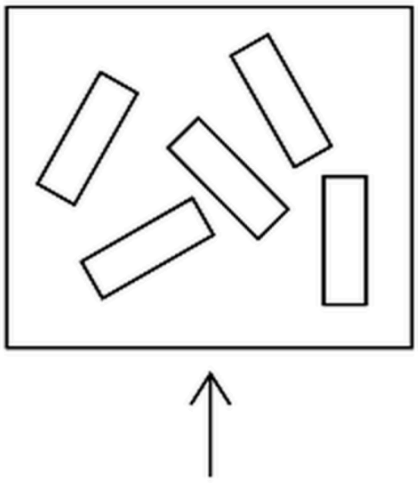
2. 

3. 

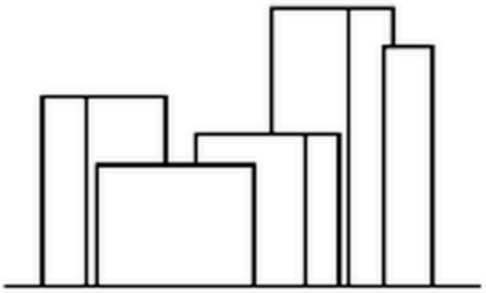
4. 

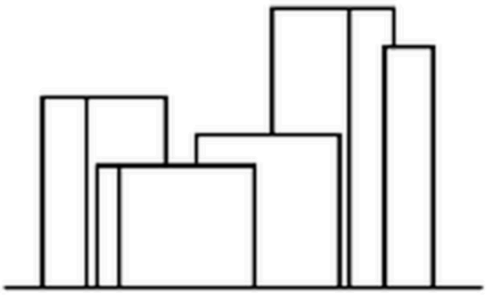
**Question Number : 58 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

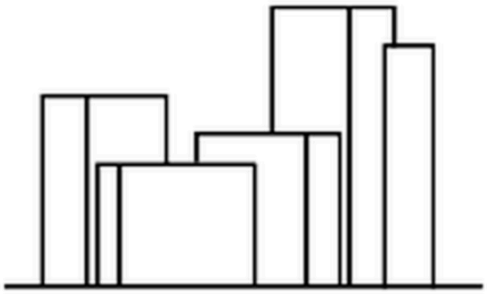
Directions : (For Q. No. 57 to 60). The problem figure shows the top view of objects. Looking in the direction of the arrow, identify the correct elevation, from amongst the answer figures.

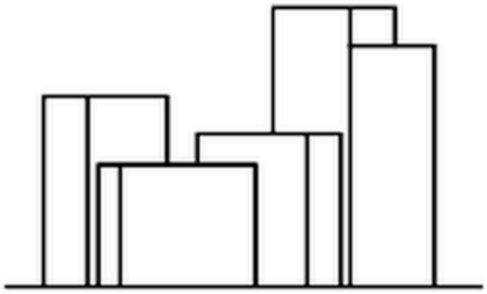


**Options :**

1. 

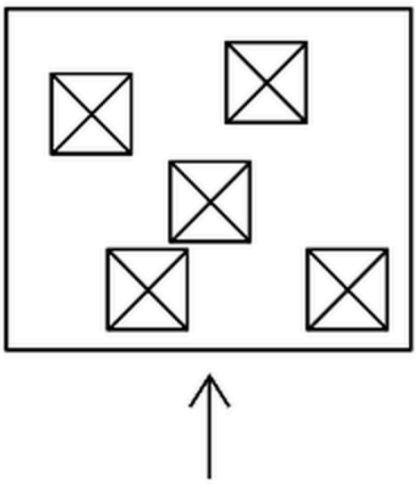
2. 

3. 

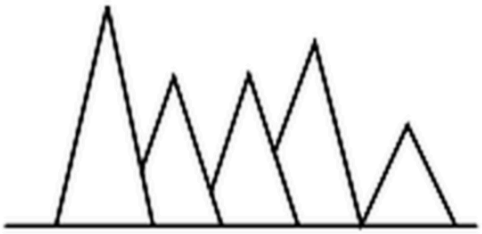
4. 

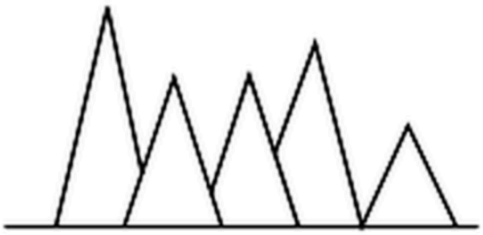
**Question Number : 59 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

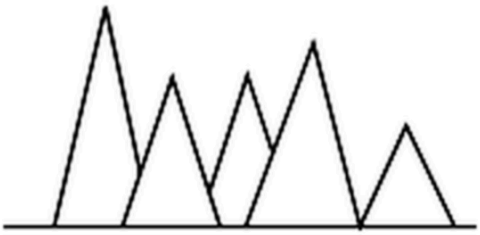
Directions : (For Q. No. 57 to 60). The problem figure shows the top view of objects. Looking in the direction of the arrow, identify the correct elevation, from amongst the answer figures.

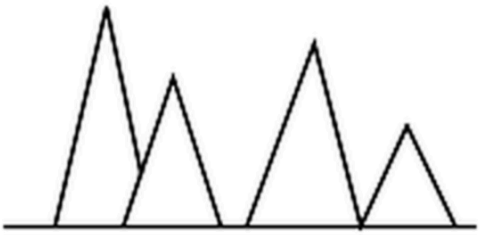


**Options :**

1. 

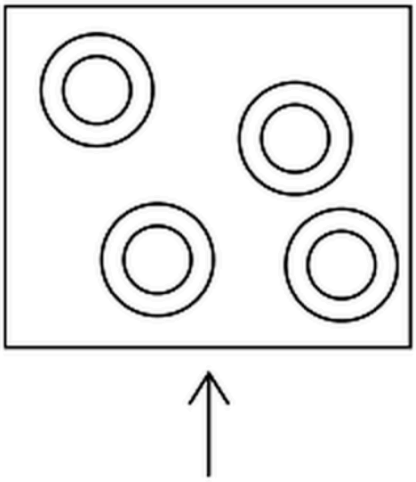
2. 

3. 

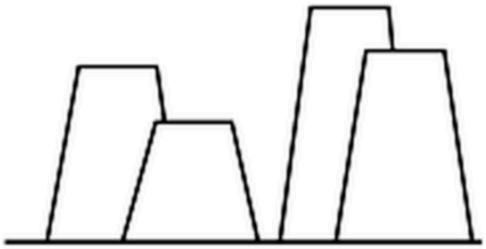
4. 

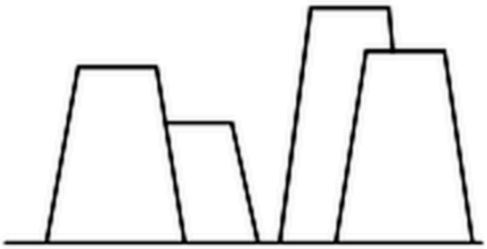
**Question Number : 60 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

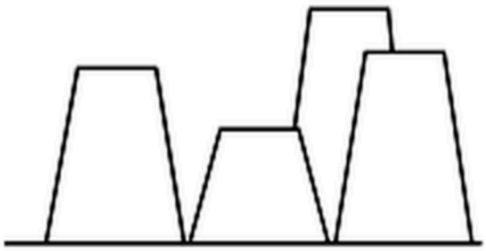
Directions : (For Q. No. 57 to 60). The problem figure shows the top view of objects. Looking in the direction of the arrow, identify the correct elevation, from amongst the answer figures.

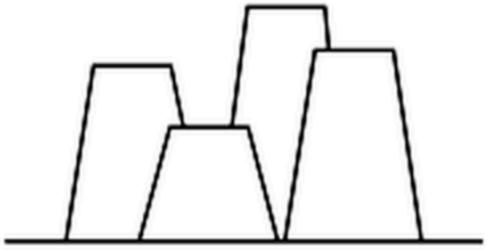


**Options :**

1. 

2. 

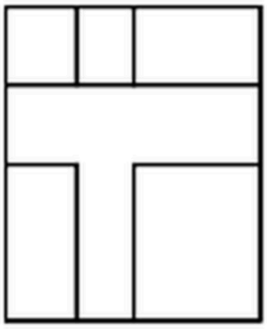
3. 



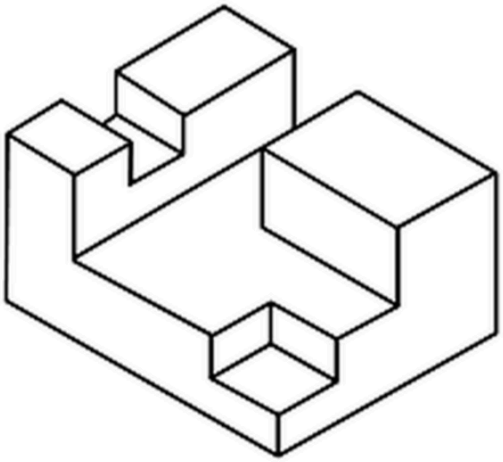
4.

**Question Number : 61 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

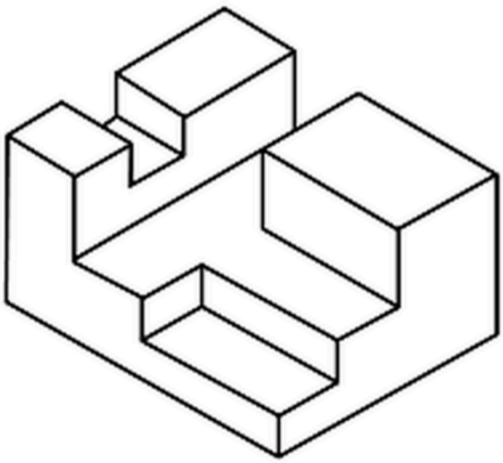
Directions : (For Q. No. 61). From the top view given in the problem figure identify the correct 3-D figure from amongst the answer figures.



**Options :**

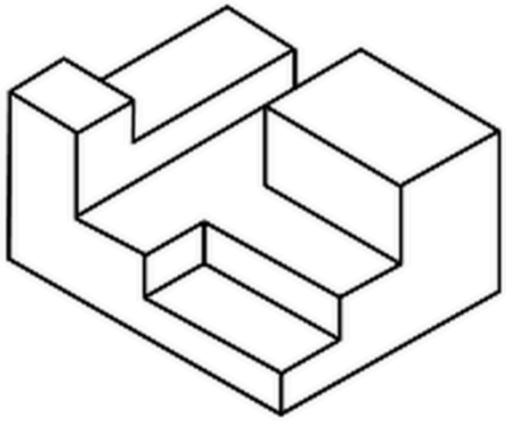


1.

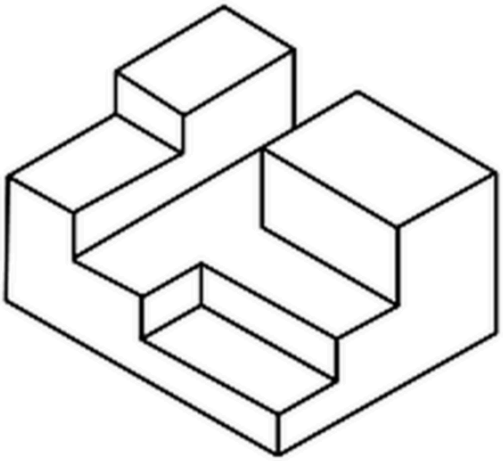


2.

3.

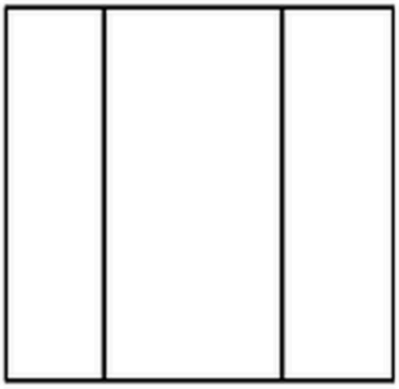


4.

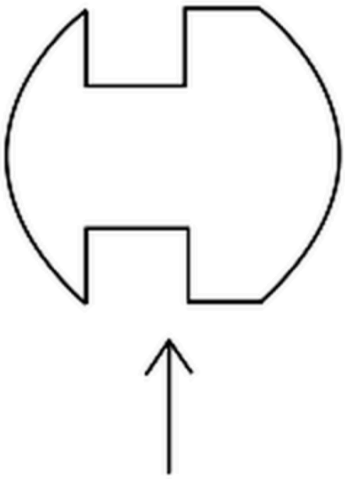


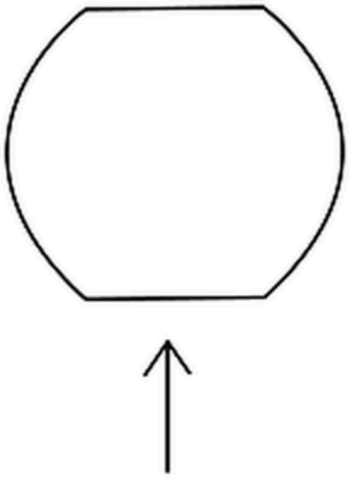
**Question Number : 62 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

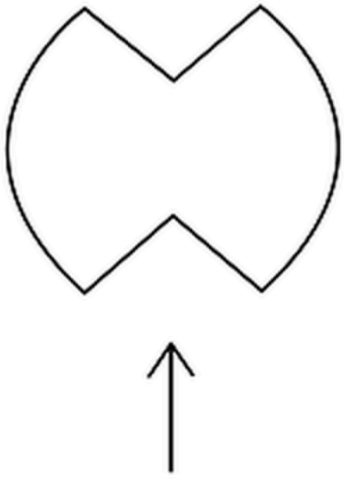
Directions : (For Q. No. 62 and 63). The problem figure shows the elevation of an object. Identify the correct top view from amongst the answer figures.

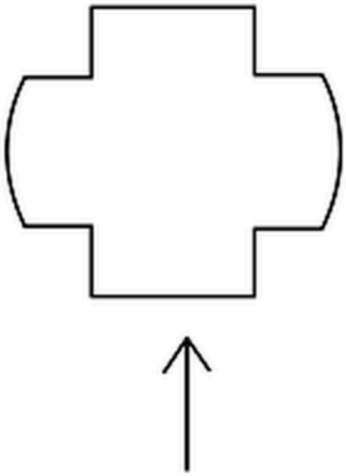


**Options :**

1. 

2. 

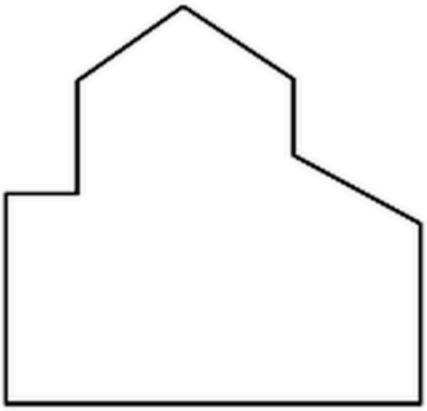
3. 



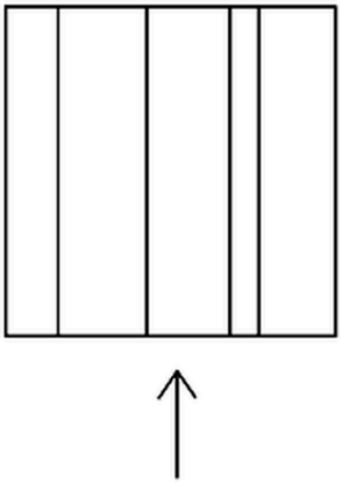
4.

**Question Number : 63 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

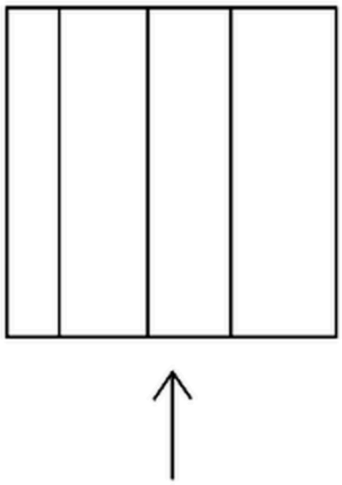
Directions : (For Q. No. 62 and 63). The problem figure shows the elevation of an object. Identify the correct top view from amongst the answer figures.

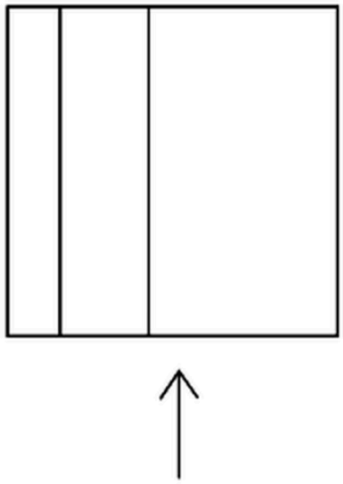


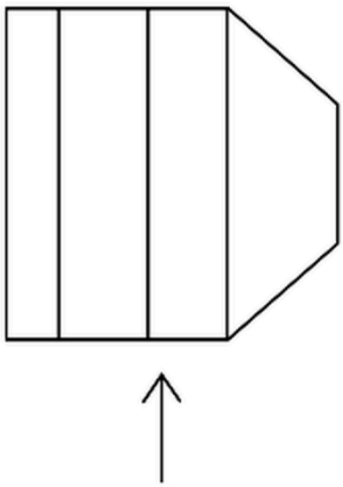
**Options :**



1.

2. 

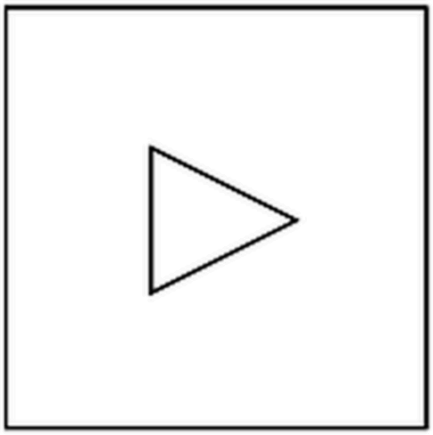
3. 

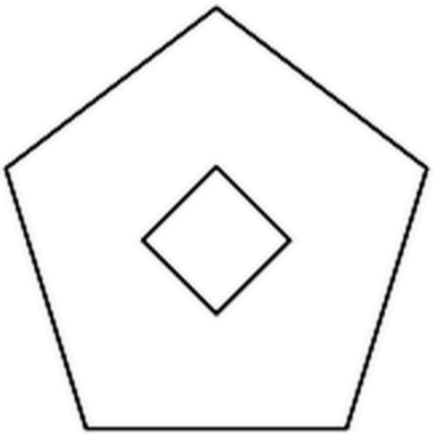
4. 

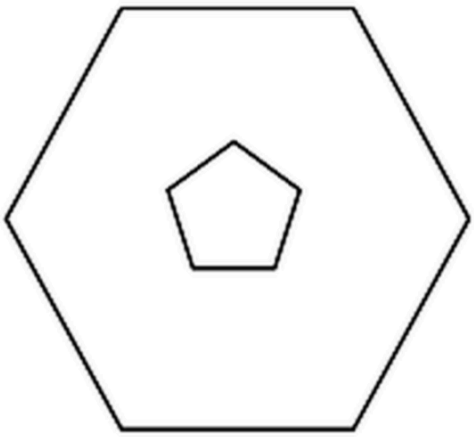
**Question Number : 64 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

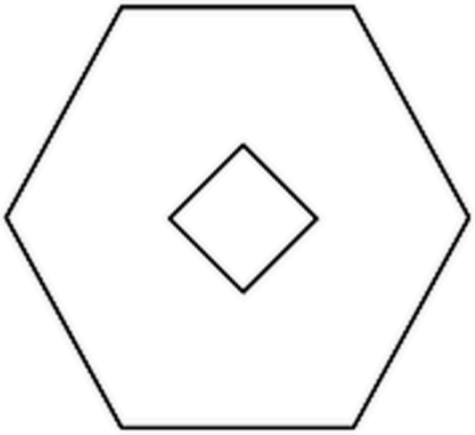
Directions : (For Q. No. 64 and 65). Find the odd figure out of the problem figures given below.

**Options :**

1. 

2. 

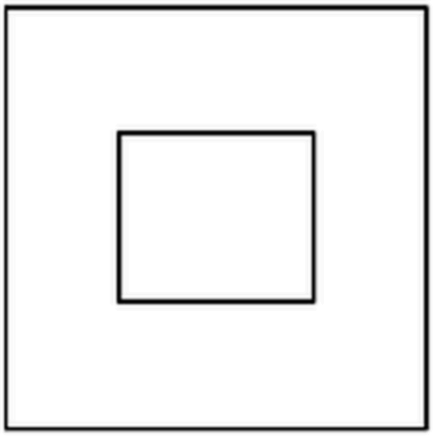
3. 

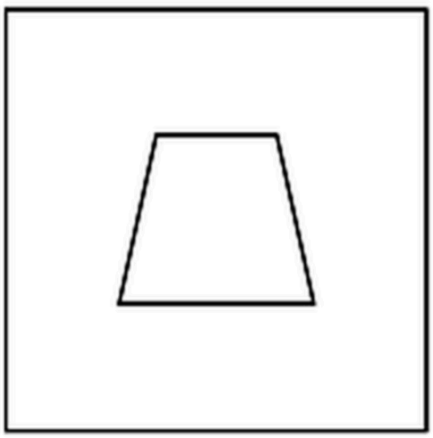
4. 

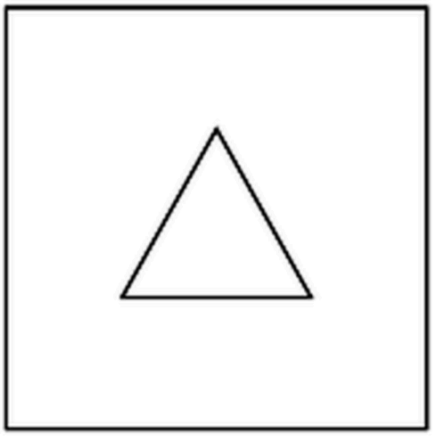
**Question Number : 65 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

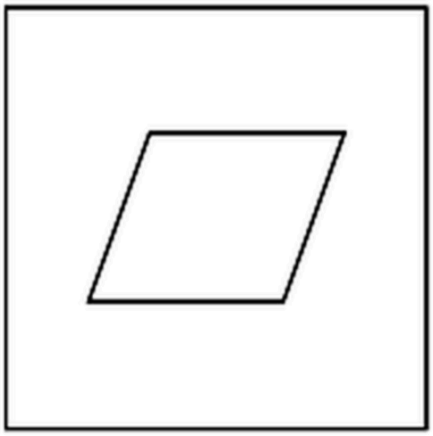
Directions : (For Q. No. 64 and 65). Find the odd figure out of the problem figures given below.

**Options :**

1. 

2. 

3. 

4. 

**Question Number : 66 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

Which color is obtained by mixing red and yellow colors ?

**Options :**

1. Purple

2. Pink

3. Orange

4. Brown

**Question Number : 67 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

Salim Chisti mosque is located in :

**Options :**

1. Gwalior

2. Fatehpur Sikri

3. Hyderabad

4. Delhi

**Question Number : 68 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

Temperature of the Earth due to the 'Greenhouse Effect' :

**Options :**

1. Increases

2. Decreases

3. Remains constant

4. Keeps increasing/decreasing

**Question Number : 69 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

Vertical sun protectors over wall openings help in cutting off summer sun rays on :

**Options :**

1. South side

2. West side

3. North side

4. On all sides

**Question Number : 70 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

Which one of the following is not a load bearing component in a building ?

**Options :**

1. Column

2. Beam

3. Partition wall

4. Concrete floor slab

**Question Number : 71 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

Which type of roof will provide maximum protection from heat radiation in a building ?

**Options :**

1. Painted aluminium sheeting

2. Concrete slab with plaster

3. Concrete slab with mud and brick tiles

4. Concrete slab, water proofed and covered with a roof garden

**Question Number : 72 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

Ellora temples are :

**Options :**

1. Made in marble

2. Built in sandstone

3. Cut out of rock

4. Built in wood

**Question Number : 73 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

Gol Gumbaj of Bijapur is :

**Options :**

1. A Fort

2. A Mausoleum

3. A Palace

4. A Mosque

**Question Number : 74 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

Buland Darwaza is located in :

**Options :**

1. Fatehpur Sikri

2. Red Fort

3. Agra Fort

4. Golconda

**Question Number : 75 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

Big Ben is a :

**Options :**

1. Clock Tower

2. Palace

3. Mosque

4. Temple

**Question Number : 76 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

IGBC stands for :

**Options :**

1. International Great Beautiful City

2. Indian Green Building Council

3. Indian Great Building Center

4. Indian Government Biological Center

**Question Number : 77 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

Solar energy is converted to electrical energy by :

**Options :**

1. Photovoltaic cells

2. Electro magnets

3. Bio technology

4. Rain water

**Question Number : 78 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

The ruins of Hampi are located in which State ?

**Options :**

1. Karnataka

2. Andhra Pradesh

3. Kerala

4. Tamil Nadu

**Question Number : 79 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

What is Venice famous for ?

**Options :**

1. Canals

2. Mountains

3. Valleys

4. Springs

**Question Number : 80 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1**

Pyramids are located in :

**Options :**

1. Rome

2. Egypt

3. Greece

4. Ethiopia

## Drawing

**Section Number :** 3
**Number of Questions :** 2
**Number of Questions to be attempted :** 2
**Section Marks :** 70

**Question Number : 81 Question Type : SUBJECTIVE Correct Marks : 40 Wrong Marks : 0**

(a) Make an interesting. Design using outer profile of keys.

(b) Draw a picture of your favourite film star's face as realistic as possible.

**Question Number : 82 Question Type : SUBJECTIVE Correct Marks : 30 Wrong Marks : 0**

Design a t-shirt in the topic of Save plants.

OR

Imagine that you've an examiner in a class room & test is going on, from your memory, draw the view.

OR

Imagine you are sitting on a merry go round, draw the view.