National Testing Agency

Question Paper Name :	JEE Main 2021 Paper 2B (B.Planning) Sep 2 Single sitting
Subject Name :	Paper 2B (B.Planning)
Creation Date :	2021-09-03 09:39:40
Duration :	180
Total Marks :	400

Paper 2B (B.Planning)

Group Id : 864351272

Mathematics Section A

Section Number :	1
Number of Questions :	20
Number of Questions to be attempted :	20
Section Marks :	80

Question Number : 1 Question Id : 86435122526 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

The domain of the function, $f(x) = \sqrt{\frac{\log_{0.6}|x-2|}{|x|}}$ is :

Options :

86435174711. $[1, 2) \cup [3, \infty)$

86435174712. $[1, 2) \cup (2, 3]$

86435174713. $(0, 1) \cup (2, 3]$

86435174714. $(-\infty, 0) \cup [1, 2)$

Question Number : 2 Question Id : 86435122527 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Let α and β be the roots of the quadratic equation $x^2 + \sqrt{3}\,x + 1 = 0$.

Then $\alpha^{2022} + \beta^{2022}$ is equal to :

Options :

86435174715. 2

86435174716. -2

86435174717. 0

86435174718. $-\sqrt{3}$

Question Number : 3 Question Id : 86435122528 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

If $A=\begin{pmatrix}0 & 0 & 2\\ 1 & 0 & 0\\ 0 & -1 & 0\end{pmatrix}$, then :

Options :

86435174719. $A^6=2\ A^3$

86435174720. $2A^6=A^3$

86435174721. $A^{12}=4\ A^6$

86435174722. $A^{12}=2\ A^6$

Question Number : 4 Question Id : 86435122529 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

The sum of all values of λ, for which the system of equations

$x+y+z=1$

$x+2y+4z=\lambda$

$x+4y+10z=\lambda^2$

has infinitely many solutions, is :

Options :

86435174723. 2

86435174724. -2

86435174725. 3

86435174726. -3

Question Number : 5 Question Id : 86435122530 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Let $f(x)=\max\{x^2, x^3\}$ for all $x \in \mathbf{R}$. Then which of the following is **NOT** true ?

Options :

86435174727. f is continuous for all x.

86435174728. f is not differentiable exactly at one point in $\mathbf{R}$.

86435174729. f is not differentiable exactly at two points in $\mathbf{R}$.

86435174730. $f'\left(-\frac{1}{2}\right)+f'\left(\frac{1}{8}\right)+f'\left(\frac{3}{2}\right)=6$

Question Number : 6 Question Id : 86435122531 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

The sum of the series

$$\frac{1}{6}+\frac{5}{6^2}+\frac{19}{6^3}+\ldots+\frac{3^{10}-2^{10}}{3^{10}\cdot 2^{10}} \text{ is :}$$

Options :

86435174731. $\frac{511}{2^{10}}$

86435174732. $1+\frac{2^9-3^{10}}{6^{10}}$

86435174733. $\frac{(255)\cdot 3^{10}+2^9}{6^{10}}$

86435174734. $\frac{(511)\cdot 3^{10}+2^9}{6^{10}}$

Question Number : 7 Question Id : 86435122532 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

$$\lim_{x\to 0}\frac{1}{x^2}\left(e^{x^2}-\cos\frac{x}{2}\right) \text{ is equal to :}$$

Options :

86435174735. $\frac{3}{2}$

86435174736. $\frac{5}{8}$

86435174737. $\frac{9}{8}$

86435174738. $\frac{9}{4}$

Question Number : 8 Question Id : 86435122533 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

If $\int\sqrt{\frac{\cos(x-\theta)}{\cos(x+\theta)}}\,dx = \alpha\sin^{-1}\left(\frac{\sin x}{\cos\theta}\right) + \beta\log_e\left|\cos x + \sqrt{\cos^2 x - \sin^2\theta}\right| + C,$

where C is a constant of integration and $\frac{\pi}{6} < \theta < \frac{\pi}{4}$, then $\alpha\sin\theta + \beta\cos\theta$ is equal to :

Options :

86435174739. 0

86435174740. 1

86435174741. $\cos 2\theta$

86435174742. $\sin 2\theta$

Question Number : 9 Question Id : 86435122534 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

If $I = \int_0^1 \tan^{-1}(\sqrt{x}+1)\,dx$, $J = \int_0^1 \frac{\sqrt{x}\,dx}{x+2\sqrt{x}+2}$, then the value of $2I + J$ is equal to :

Options :

86435174743. $2\tan^{-1}\left(\frac{1}{2}\right)$

86435174744. $2\tan^{-1}(2) - \frac{\pi}{2}$

86435174745. $2\tan^{-1}(2)$

86435174746. $\tan^{-1}(2)$

Question Number : 10 Question Id : 86435122535 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Let $y = y(x)$ be the solution of the differential equation $x\frac{dy}{dx} = (2x+3)e^x + xy,\ x > 0$.

If $y(e) = (2e+3)e^e$, then $\frac{d^2y}{dx^2} - \frac{dy}{dx}$ at $x = 1$ is equal to :

Options :

86435174747. $3e$

86435174748. e

86435174749. 0

86435174750. $2e$

Question Number : 11 Question Id : 86435122536 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Let f be a non-zero polynomial function such that $f(3x)=f'(x)f''(x)$.
Then the value of $f(6)$ is :

Options :

86435174751. 648

86435174752. 324

86435174753. 136

86435174754. 108

Question Number : 12 Question Id : 86435122537 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

A rod AB of length 4 units rests against a vertical wall with A on the horizontal floor.
P is a point on AB such that AP : PB = 2 : 1. If the rod slides down along the wall in a vertical plane, then the point P(x, y) moves on the curve :

Options :

86435174755. $36x^2+9y^2=64$

86435174756. $36x^2+9y^2=16$

86435174757. $9x^2+36y^2=64$

86435174758. $9x^2+36y^2=16$

Question Number : 13 Question Id : 86435122538 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Let A(1, 2) and B(3, 6) are two points on a circle of radius R, whose one of the diameters is along the line $2x-y+4=0$. Then R^2 is equal to :

Options :

86435174759. 17

86435174760. $\frac{37}{3}$

86435174761. $\frac{31}{5}$

86435174762. $\frac{41}{5}$

Question Number : 14 Question Id : 86435122539 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

A line perpendicular to the line $4x=3y$ is a tangent to the parabola $y^2=3x+1$ at a point P on it. If S is the focus of the parabola, then the equation of the line SP is :

Options :

86435174763. $24x+5y=10$

86435174764. $24x-y=26$

86435174765. $24x+7y=10$

86435174766. $8x+y=6$

Question Number : 15 Question Id : 86435122540 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

If a line $px+qy=12$ is a tangent to the ellipse $4x^2+9y^2=16$, then pq can **NOT** be equal to :

Options :

86435174767. 29

86435174768. 26

86435174769. 23

86435174770. 21

Question Number : 16 Question Id : 86435122541 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

If the angle between the line $\frac{x+1}{1}=\frac{y-1}{2}=\frac{z+2}{-1}$ and the plane P : $2x-y-\lambda z+4=0$, $\lambda > 0$, is $\sin^{-1}\left(\frac{1}{9\sqrt{6}}\right)$, then the distance of the point $(-1, 1, -2)$ from the plane P is :

Options :

86435174771. $\frac{2}{3}$

86435174772. 1

86435174773. $\frac{3}{2}$

86435174774. $\frac{2}{9}$

Question Number : 17 Question Id : 86435122542 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Let the distinct numbers a, b, c be the p^{th}, q^{th} and r^{th} terms of a geometric progression of positive terms. Then the angle between the vectors $\vec{u} = \left(\log_e a^2\right)\hat{i} + \left(\log_e b^2\right)\hat{j} + \left(\log_e c^2\right)\hat{k}$ and $\vec{v} = (q-r)\hat{i} + (r-p)\hat{j} + (p-q)\hat{k}$ is :

Options :

86435174775. 0

86435174776. $\frac{\pi}{4}$

86435174777. $\frac{\pi}{3}$

86435174778. $\frac{\pi}{2}$

Question Number : 18 Question Id : 86435122543 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

For $0 < x < \pi$, the sum of the solutions of the equation $4^{\left(\frac{1}{2}\sin x + \frac{1}{4}\sin^2 x + \frac{1}{8}\sin^3 x + \cdots\right)} = 2^{\frac{2}{3}}$ is :

Options :

86435174779. $\frac{\pi}{3}$

86435174780. $\frac{2\pi}{3}$

86435174781. π

86435174782. $\frac{\pi}{2}$

Question Number : 19 Question Id : 86435122544 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

The domain of the function

$$f(x) = \tan^{-1}\left(\sqrt{x^2 + x - 2}\right) + \sec^{-1}(x^2 - 5x + 3) \text{ is :}$$

Options :

86435174783. $(-\infty, -2] \cup [1, \infty)$

86435174784. $[1, 4] \cup \left[\frac{5 + \sqrt{17}}{2}, \infty\right)$

86435174785. $\left(-\infty, \frac{5 - \sqrt{17}}{2}\right] \cup [1, 4] \cup \left[\frac{5 + \sqrt{17}}{2}, \infty\right)$

86435174786. $(-\infty, -2] \cup [1, 4] \cup \left[\frac{5 + \sqrt{17}}{2}, \infty\right)$

Question Number : 20 Question Id : 86435122545 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Which of the following is equivalent to $p \leftrightarrow q$?

Options :

86435174787. $(\sim p \wedge \sim q) \vee (p \vee q)$

86435174788. $(p \wedge q) \vee (\sim p \wedge \sim q)$

86435174789. $(p \vee q) \wedge (\sim p \vee \sim q)$

86435174790. $(p \wedge q) \vee (p \vee q)$

Mathematics Section B

Section Number : 2
Number of Questions : 10
Number of Questions to be attempted : 5
Section Marks : 20

Question Number : 21 Question Id : 86435122546 Question Type : SA Correct Marks : 4 Wrong Marks : 0

Three fair dice are thrown. The number of ways to obtain a total of 11 is _____.

Question Number : 22 Question Id : 86435122547 Question Type : SA Correct Marks : 4 Wrong Marks : 0

If a plane, that contains the line $\vec{r} = (1, -1, 1) + \lambda(2, 3, -6)$, $\lambda \in \mathbf{R}$, passes through the point (2, 0, 2) and is at a distance d from the origin, then the value of 73 d^2 is _____.

Question Number : 23 Question Id : 86435122548 Question Type : SA Correct Marks : 4 Wrong Marks : 0

Number of real roots of the equation

$$\sqrt{x+2} - \sqrt{x-2} = \sqrt{4x-1} \text{ is } _____.$$

Question Number : 24 Question Id : 86435122549 Question Type : SA Correct Marks : 4 Wrong Marks : 0

Between 1 and 31, n numbers have been inserted in such a way that the resulting sequence is an A.P. If the ratio of $(n-1)^{th}$ and 7^{th} inserted numbers is 9 : 5, then n is equal to _____.

Question Number : 25 Question Id : 86435122550 Question Type : SA Correct Marks : 4 Wrong Marks : 0

The sum of absolute maximum and absolute minimum values of the function $f(x) = |4x^2 + 3x - 10| + x^2 - 2x + 5$, $x \in [-3, 1]$ is _____.

Question Number : 26 Question Id : 86435122551 Question Type : SA Correct Marks : 4 Wrong Marks : 0

If the area (in sq. units) of the region bounded by the curve $y = |x-2| + |2x-3| + |3x-4|$ and the line $y = 3$ is A, then 12 A is equal to _____.

Question Number : 27 Question Id : 86435122552 Question Type : SA Correct Marks : 4 Wrong Marks : 0

The coefficient of $a^4b^6c^6$ in the expansion of $(ab + bc + ca)^8$ is _____.

Question Number : 28 Question Id : 86435122553 Question Type : SA Correct Marks : 4 Wrong Marks : 0

The number of ordered pairs (a, b), such that the function $f(x) = 4x^3 - (3a + 2b)x^2 + 2abx$ is decreasing in $\left[\frac{3}{2}, \frac{5}{3}\right]$ and increasing in $\mathbf{R} - \left[\frac{3}{2}, \frac{5}{3}\right]$, is _____.

Question Number : 29 Question Id : 86435122554 Question Type : SA Correct Marks : 4 Wrong Marks : 0

Three numbers are randomly picked from the set {0, 1, 2, 3, 4, 5, 6, 7, 8, 9} one after another without replacement. If p be the probability that the smallest of these three numbers is less than 4, then 18p is equal to _____.

Question Number : 30 Question Id : 86435122555 Question Type : SA Correct Marks : 4 Wrong Marks : 0

If the mean of the numbers 3, 4, a, b, 10 is 6 and their standard deviation is $\sqrt{6.8}$, then $a^3 + b^3$ is equal to _____.

Aptitude Test

Section Number : 3
Number of Questions : 50
Number of Questions to be attempted : 50
Section Marks : 200

Question Number : 31 Question Id : 86435122556 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Match **List - I** with **List - II** :

	List - I		**List - II**
(a)	Jaisalmer	(i)	Pink city
(b)	Jodhpur	(ii)	Golden city
(c)	Jaipur	(iii)	Lake city
(d)	Udaipur	(iv)	Blue city

Options :

86435174801. (a)-(iv), (b)-(ii), (c)-(iii), (d)-(i)

86435174802. (a)-(ii), (b)-(iv), (c)-(i), (d)-(iii)

86435174803. (a)-(iii), (b)-(i), (c)-(iv), (d)-(ii)

86435174804. (a)-(ii), (b)-(iv), (c)-(iii), (d)-(i)

Question Number : 32 Question Id : 86435122557 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Match **List - I** with **List - II** :

	List - I		**List - II**
(a)	Jod Gumbaz	(i)	Mahabalipuram
(b)	Cave temples	(ii)	Madhurai
(c)	Rangnatha temple	(iii)	Bijapur
(d)	Minakshi temple	(iv)	Srirangam

Options :

86435174805. (a)-(iii), (b)-(ii), (c)-(iv), (d)-(i)

86435174806. (a)-(iii), (b)-(i), (c)-(iv), (d)-(ii)

86435174807. (a)-(iv), (b)-(i), (c)-(iii), (d)-(ii)

86435174808. (a)-(i), (b)-(iv), (c)-(iii), (d)-(ii)

Question Number : 33 Question Id : 86435122558 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Which is the largest monestry in India ?

Options :

86435174809. Tawang

86435174810. Leh

86435174811. Dharamshala

86435174812. Labrang

Question Number : 34 Question Id : 86435122559 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Where is 'Junagadh fort' choose the correct option amongst the following ?

Options :

86435174813. Udaipur

86435174814. Jodhpur

86435174815. Bikaner

86435174816. Jaisalmer

Question Number : 35 Question Id : 86435122560 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

'Kyoto protocol' summit was held in which country ?

Options :

86435174817. Japan

86435174818. Korea

86435174819. Malyasia

86435174820. China

Question Number : 36 Question Id : 86435122561 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

What was Delhi's old name ?

Options :

86435174821. Old Delhi

86435174822. Shahjahanpur

86435174823. Shahpur Jat

86435174824. Shahajahanabad

Question Number : 37 Question Id : 86435122562 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Match **List - I** with **List - II** :

List - I : Name of the cities/towns where traditional Ghats are situated.

List - II : Name of the river on which traditional Ghats are constructed.

	List - I		**List - II**
(a)	Maheshwar, MP	(i)	Ganga
(b)	Kolhapur, Maharashtra	(ii)	Shipra
(c)	Ujjain, MP	(iii)	Narmada
(d)	Varanasi, UP	(iv)	Panchganga

Options :

86435174825. (a)-(i), (b)-(ii), (c)-(iii), (d)-(iv)

86435174826. (a)-(iv), (b)-(iii), (c)-(ii), (d)-(i)

86435174827. (a)-(iv), (b)-(ii), (c)-(iii), (d)-(i)

86435174828. (a)-(iii), (b)-(iv), (c)-(ii), (d)-(i)

Question Number : 38 Question Id : 86435122563 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

'Rani Ki Vav' is an example of :

Options :

86435174829. Haveli

86435174830. Stepwell

86435174831. Temple

86435174832. Fort

Question Number : 39 Question Id : 86435122564 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

'Al-Khazneh' the treasury is located in :

Options :

86435174833. Jordan

86435174834. Turkey

86435174835. UAE

86435174836. Saudi-Arabia

Question Number : 40 Question Id : 86435122565 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Proposed 'Central Vista' project is located in which city ?

Options :

86435174837. New Delhi

86435174838. Lucknow

86435174839. Mumbai

86435174840. Varanasi

Question Number : 41 Question Id : 86435122566 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Originally there were five 'Jantar Mantars' (Architectural Observatories) constructed by 'Raja Jai Singh'. Which out of those got destroyed in the 19^{th} century ?

Options :

86435174841. Jantar Mantar at Ujjain.

86435174842. Jantar Mantar at Mathura.

86435174843. Jantar Mantar at Varanasi.

86435174844. Jantar Mantar at Delhi.

Question Number : 42 Question Id : 86435122567 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

The local term 'Barsati' in a building mean.

Options :

86435174845. Mumty

86435174846. Balcony

86435174847. Canopy

86435174848. Parapet

Question Number : 43 Question Id : 86435122568 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Lingraj temple is situated in :

Options :

86435174849. Cuttack

86435174850. Puri

86435174851. Bhubaneshwar

86435174852. Konark

Question Number : 44 Question Id : 86435122569 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Porcelain is a product made up of :

Options :

86435174853. Steel

86435174854. Stone

86435174855. Clay

86435174856. Timber

Question Number : 45 Question Id : 86435122570 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Bhagalpur is known for :

Options :

86435174857. Cotton

86435174858. Silk

86435174859. Tea

86435174860. Rice

Question Number : 46 Question Id : 86435122571 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Which one of the following terms is used to describe trade between two or more countries ?

Options :

86435174861. Internal trade

86435174862. External trade

86435174863. International trade

86435174864. Local trade

Question Number : 47 Question Id : 86435122572 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Who has designed the 'India Habitat Center' building situated at New Delhi ?

Options :

86435174865. B.V. Doshi

86435174866. Joseph Allein Stein

86435174867. Charles Correa

86435174868. I.M. Pei

Question Number : 48 Question Id : 86435122573 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1



Mirror the words along X-Y axis and choose the correct option amongst the following.

Options :

86435174869. SUCCESS

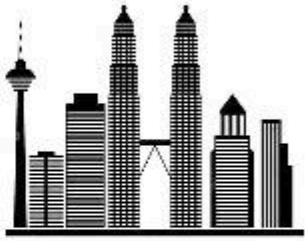
86435174870. SUCCESS

86435174871. SUCCESS

86435174872. SSECCUS

Question Number : 49 Question Id : 86435122574 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Match **List - I** with **List - II** :

List - I		**List - II**
(a) Dubai	(i)	
(b) London	(ii)	
(c) New York	(iii)	
(d) Kuala Lumpur	(iv)	

Choose **correct** answer.

Options :

86435174873. (a)-(i), (b)-(iii), (c)-(iv), (d)-(ii)

86435174874. (a)-(iv), (b)-(iii), (c)-(ii), (d)-(i)

86435174875. (a)-(iii), (b)-(ii), (c)-(iv), (d)-(i)

86435174876. (a)-(ii), (b)-(i), (c)-(iii), (d)-(iv)

Question Number : 50 Question Id : 86435122575 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Match **List - I** with **List - II** :

List - I		**List - II**
(a) Empire state building	(i)	
(b) Opera House	(ii)	
(c) Hagia Sophia	(iii)	
(d) Guggenheim Museum	(iv)	

Choose **correct** answer from the options given below :

Options :

86435174877. (a)-(iii), (b)-(iv), (c)-(i), (d)-(ii)

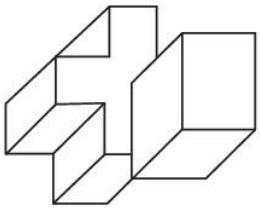
86435174878. (a)-(iv), (b)-(i), (c)-(ii), (d)-(iii)

86435174879. (a)-(i), (b)-(ii), (c)-(iv), (d)-(iii)

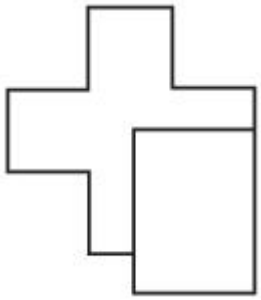
86435174880. (a)-(ii), (b)-(i), (c)-(iv), (d)-(iii)

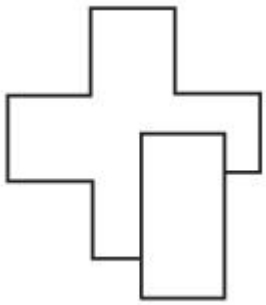
Question Number : 51 Question Id : 86435122576 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

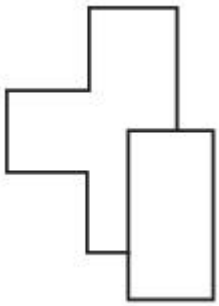
The 3D figure shows the view of an object. Identify the correct top view, amongst the answer figure's.

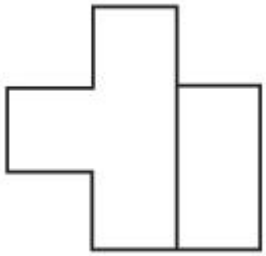


Options :

86435174881. 

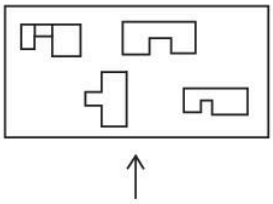
86435174882. 

86435174883. 

86435174884. 

Question Number : 52 Question Id : 86435122577 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

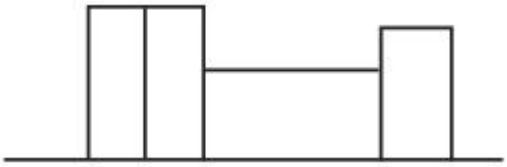
The problem figure shows the top view of an object. Identify the correct elevation looking in the direction of arrow, amongst the answer figure's.

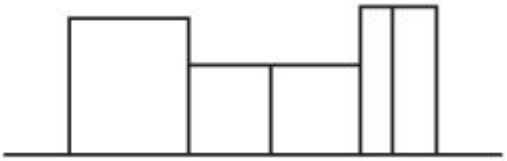


Options :

86435174885. 

86435174886. 

86435174887. 

86435174888. 

Question Number : 53 Question Id : 86435122578 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

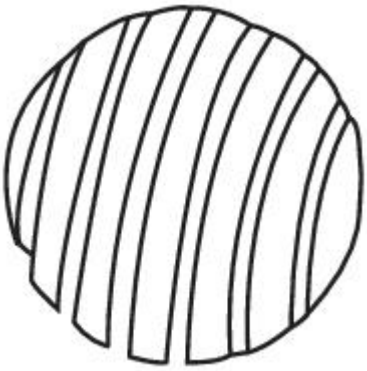
A tennis ball is cut according to the pattern of the grooves of a screw. Which of the following is the correct output :

Options :

86435174889. 

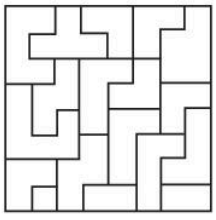
86435174890. 

86435174891. 

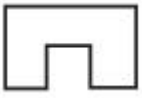
86435174892. 

Question Number : 54 Question Id : 86435122579 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

One of the following answer figure is hidden in the problem figure in same size and direction select correct one.



Options :

86435174893. 

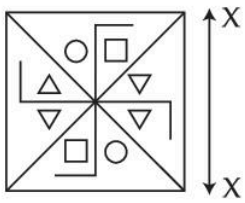
86435174894. 

86435174895. 

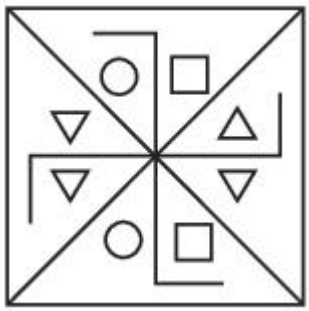
86435174896. 

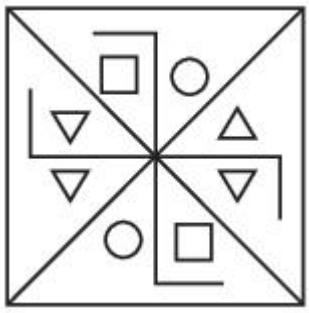
Question Number : 55 Question Id : 86435122580 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

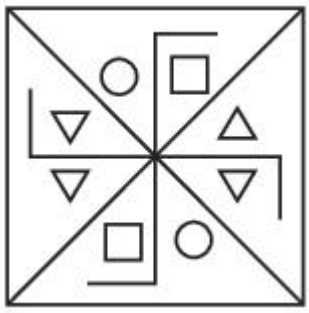
Which of the answer figure is correct mirror image of the problem figure with respect to X-X ?



Options :

86435174897. 

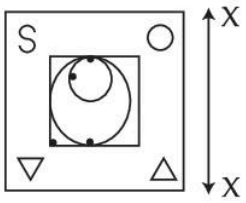
86435174898. 

86435174899. 

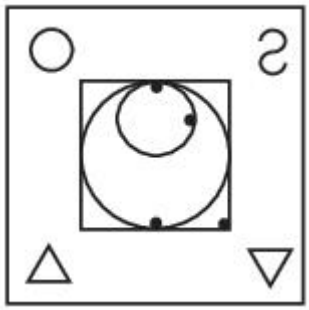
86435174900. 

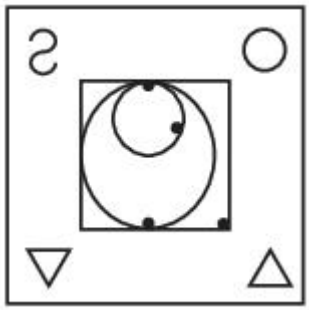
Question Number : 56 Question Id : 86435122581 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

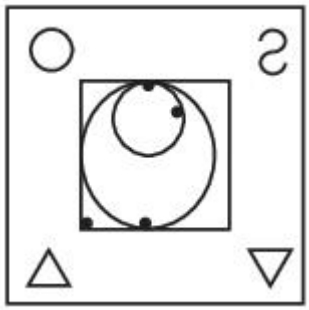
Which one of the answer figure is correct mirror image of problem figure with respect to X-X ?

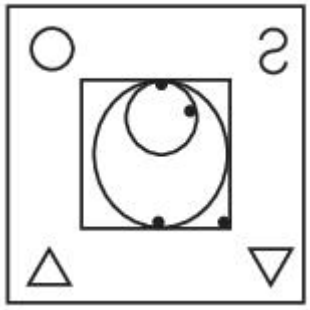


Options :

86435174901. 

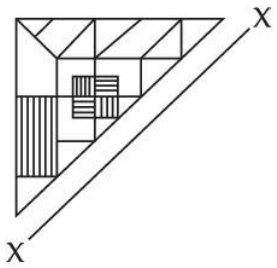
86435174902. 

86435174903. 

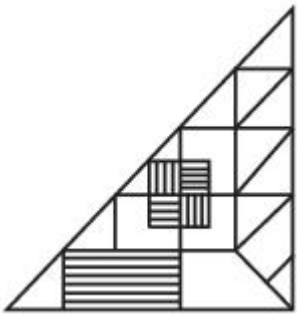
86435174904. 

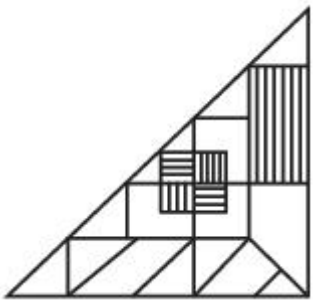
Question Number : 57 Question Id : 86435122582 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

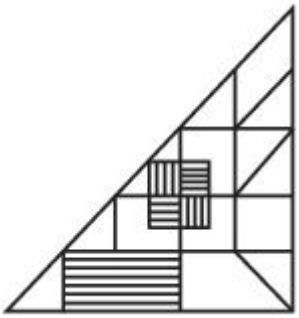
Which one of the answer figure is correct mirror image of problem figure with respect to X-X ?

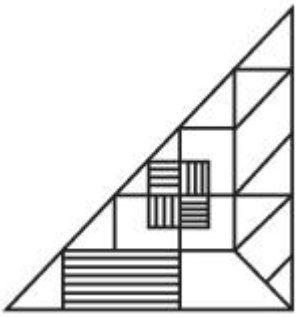


Options :

86435174905. 

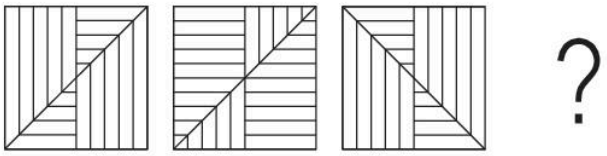
86435174906. 

86435174907. 

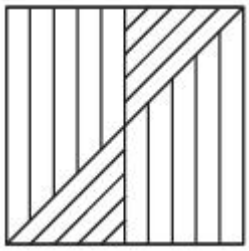
86435174908. 

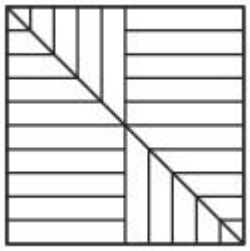
Question Number : 58 Question Id : 86435122583 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

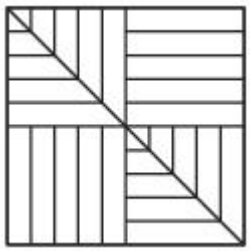
Which one of the answer figure will complete the sequence of the problem figure ? Choose correct one.

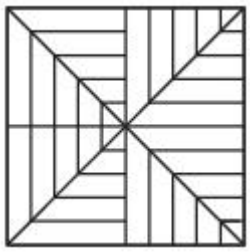


Options :

86435174909. 

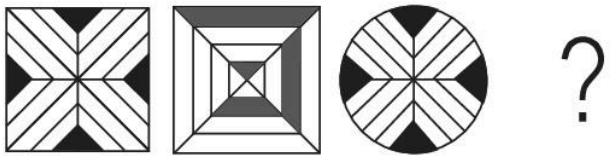
86435174910. 

86435174911. 

86435174912. 

Question Number : 59 Question Id : 86435122584 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Which one of the answer figure will complete the sequence of the problem figure ? Choose the correct one.



(a) (b) (c) (d)

Options :

86435174913. 

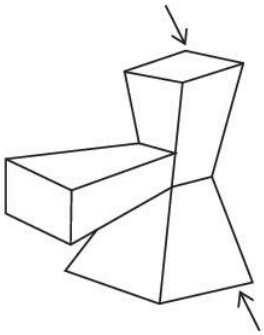
86435174914. 

86435174915. 

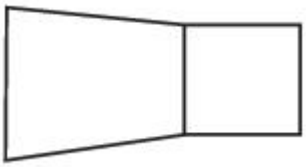
86435174916. 

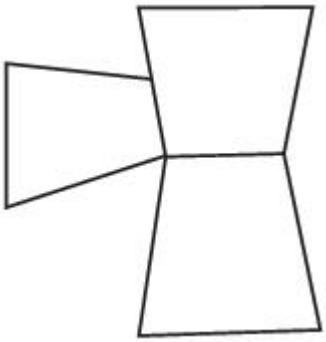
Question Number : 60 Question Id : 86435122585 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

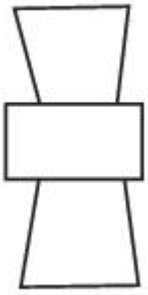
The 3D figure shows the view of an object. Find out the odd shape from the answer figures which is not related to 3D figure.

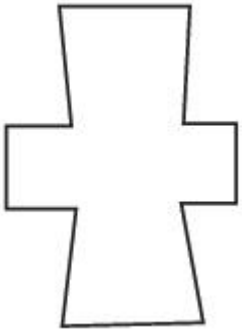


Options :

86435174917. 

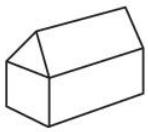
86435174918. 

86435174919. 

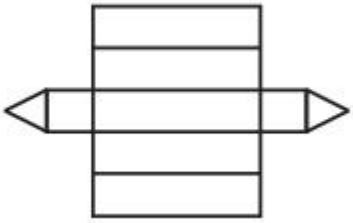
86435174920. 

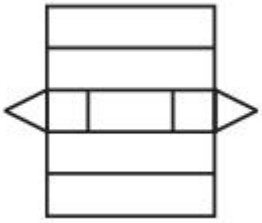
Question Number : 61 Question Id : 86435122586 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

The 3D figure shows the view of an object. Identify the correct view when figure opened up amongst the answer figures.

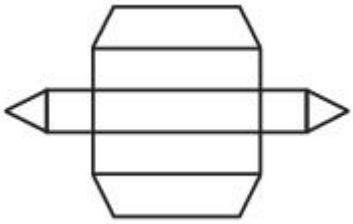


Options :

86435174921. 

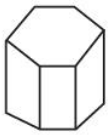
86435174922. 

86435174923. 

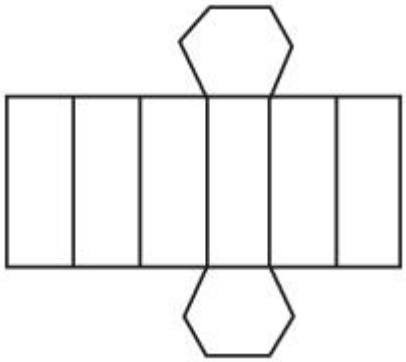
86435174924. 

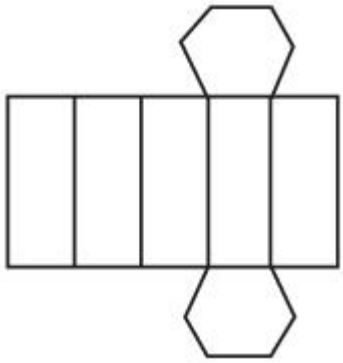
Question Number : 62 Question Id : 86435122587 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

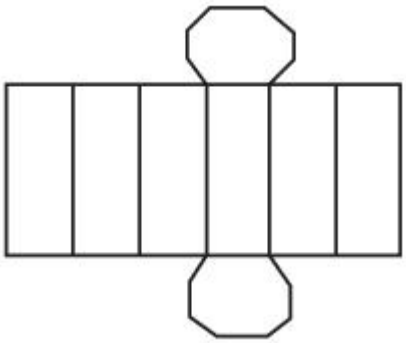
The 3D figure shows the view of an object. Identify the correct view when the figure opened up from amongst the answer figures.



Options :

86435174925. 

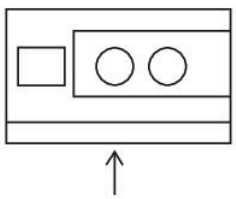
86435174926. 

86435174927. 

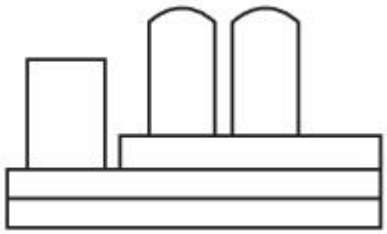
86435174928. 

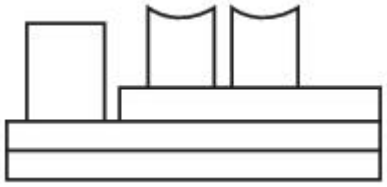
Question Number : 63 Question Id : 86435122588 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

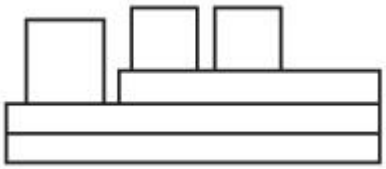
The problem figure shows the top view of an object. Identify the correct elevation amongst the answer figure looking in the direction of the arrow.

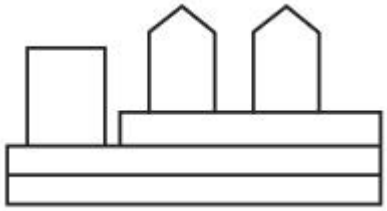


Options :

86435174929. 

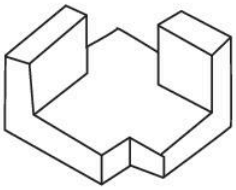
86435174930. 

86435174931. 

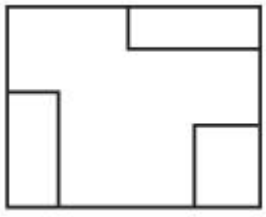
86435174932. 

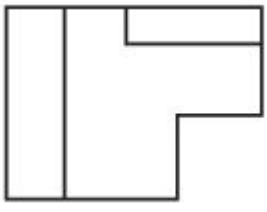
Question Number : 64 Question Id : 86435122589 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

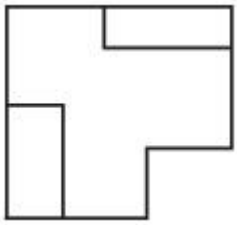
The 3D figure shows the view of an object. Identify the correct top view, from amongst the answer figure.

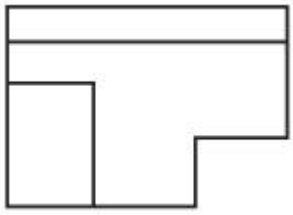


Options :

86435174933. 

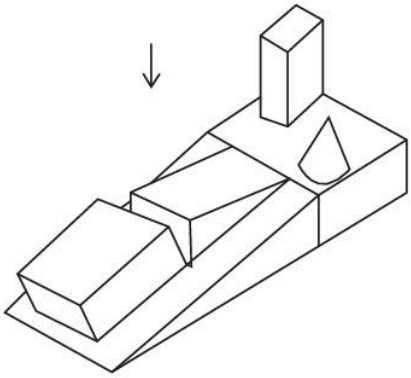
86435174934. 

86435174935. 

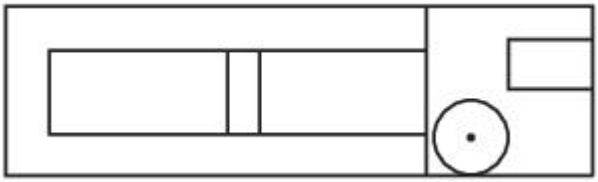
86435174936. 

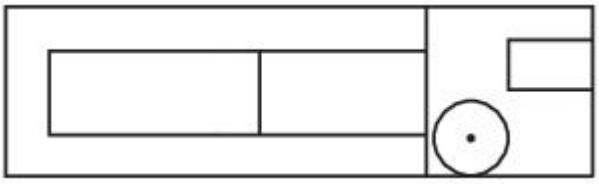
Question Number : 65 Question Id : 86435122590 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

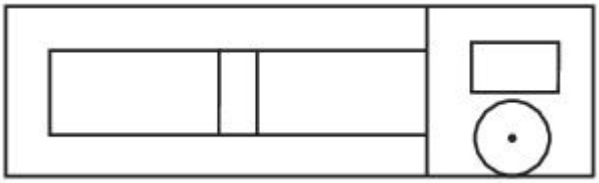
The 3D figure shows the view of an object. Identify the correct view in the direction of the arrow, from the answer figure's.

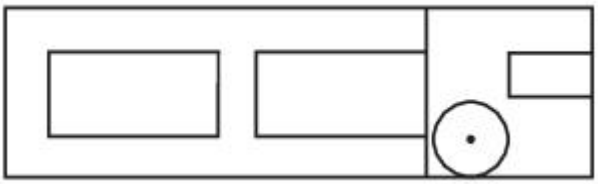


Options :

86435174937. 

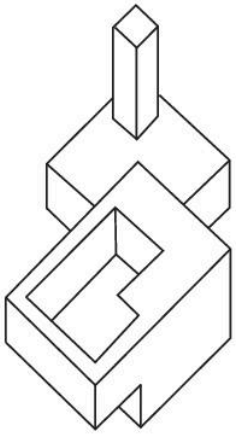
86435174938. 

86435174939. 

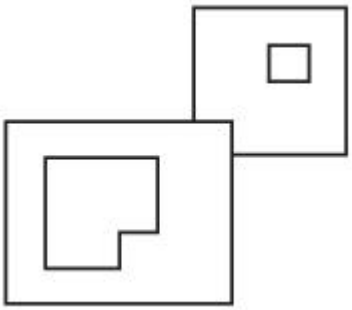
86435174940. 

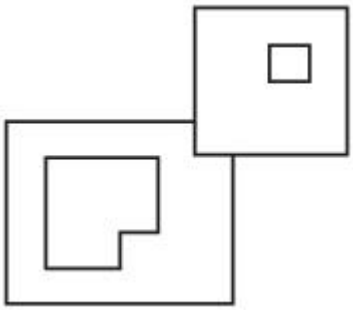
Question Number : 66 Question Id : 86435122591 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

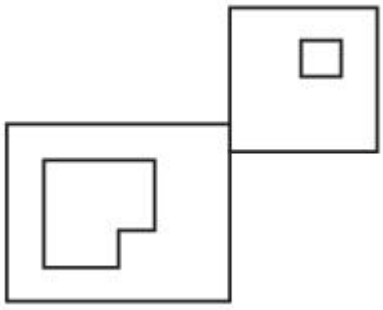
The 3D figure shows the view of an object. Identify the correct top view, amongst the answer figures.

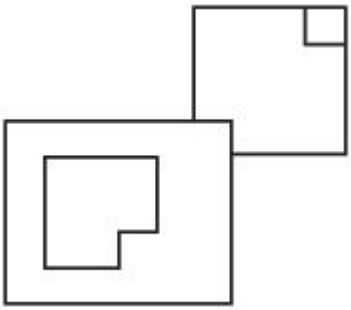


Options :

86435174941. 

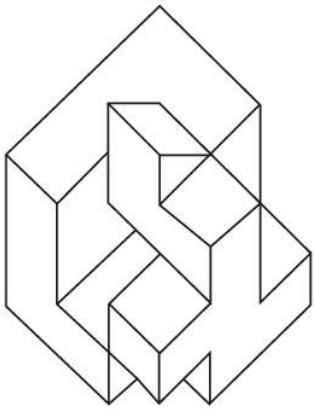
86435174942. 

86435174943. 

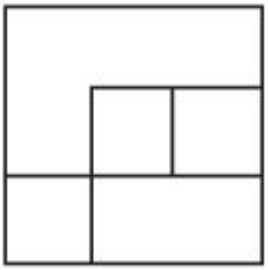
86435174944. 

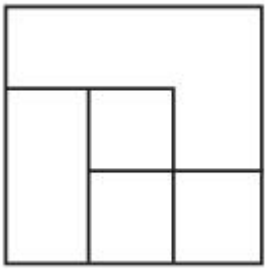
Question Number : 67 Question Id : 86435122592 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

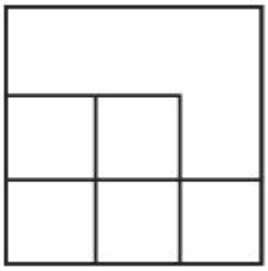
The 3D figure shows the view of an object. Identify the correct top view, amongst the answer figure's.

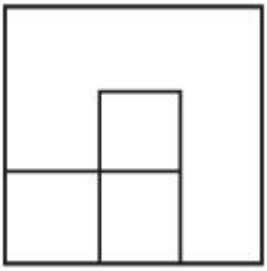


Options :

86435174945. 

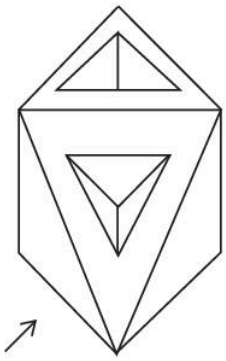
86435174946. 

86435174947. 

86435174948. 

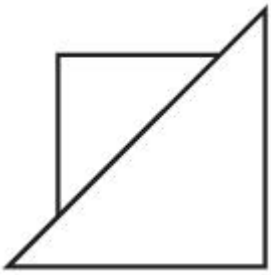
Question Number : 68 Question Id : 86435122593 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

The 3D figure shows the view of an object. Identify the correct view looking in the direction of arrow, from answer figure's.



Options :

86435174949. 

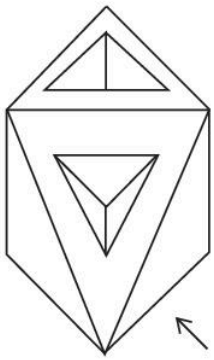
86435174950. 

86435174951. 

86435174952. 

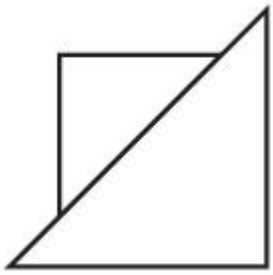
Question Number : 69 Question Id : 86435122594 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

The 3D figure shows the view of an object. Identify the correct view looking in the direction of arrow, from given answer figures.



Options :

86435174953. 

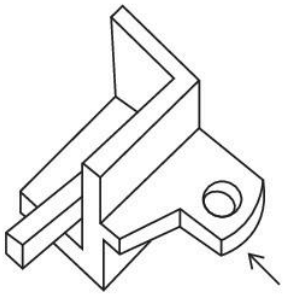
86435174954. 

86435174955. 

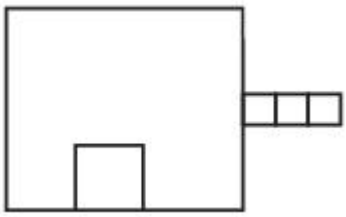
86435174956. 

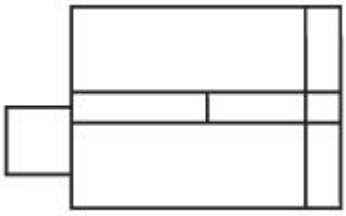
Question Number : 70 Question Id : 86435122595 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

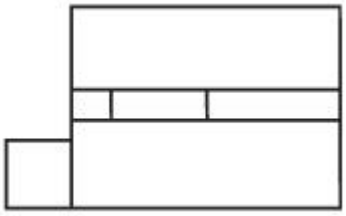
The 3D figure shows the view of an object. Identify the correct view looking in the direction of arrow amongst the answer figures.

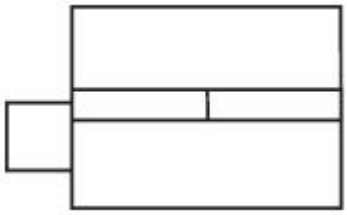


Options :

86435174957. 

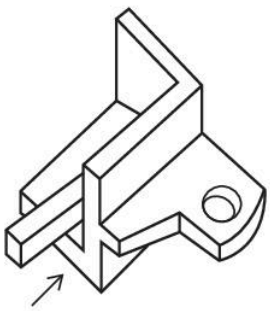
86435174958. 

86435174959. 

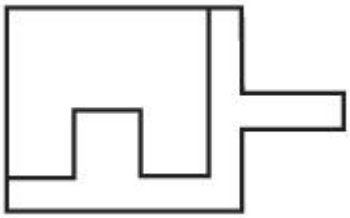
86435174960. 

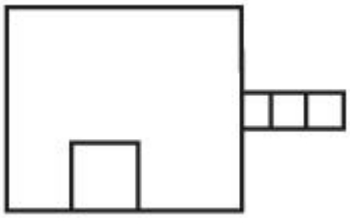
Question Number : 71 Question Id : 86435122596 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

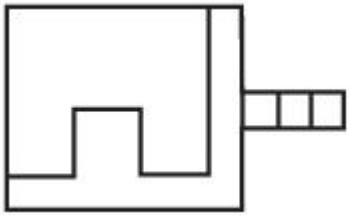
The 3D figure shows the view of an object. Identify the correct view looking in the direction of arrow, from answer figure's.

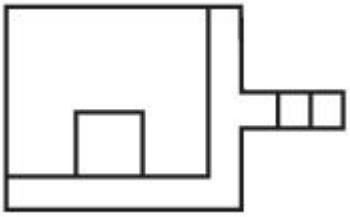


Options :

86435174961. 

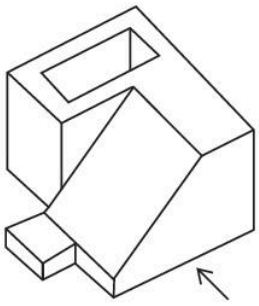
86435174962. 

86435174963. 

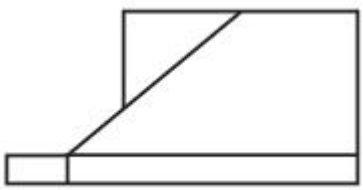
86435174964. 

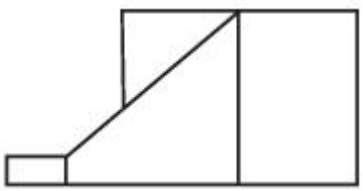
Question Number : 72 Question Id : 86435122597 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

The 3D figure shows view of an object. Identify the correct view looking in the direction of arrow, from the answer figure's.

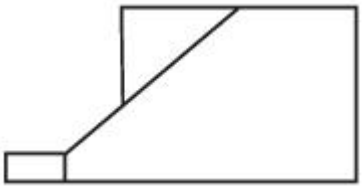


Options :

1. 

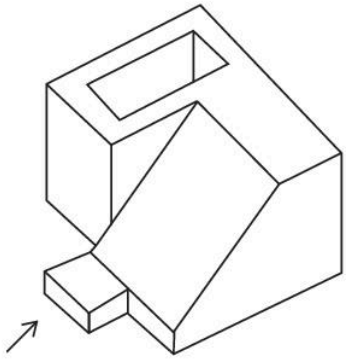
2. 

3. 

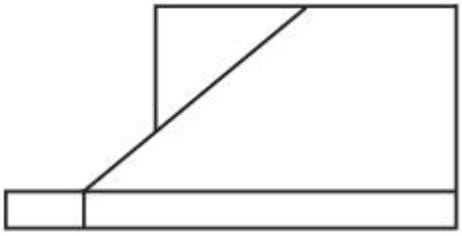
4. 

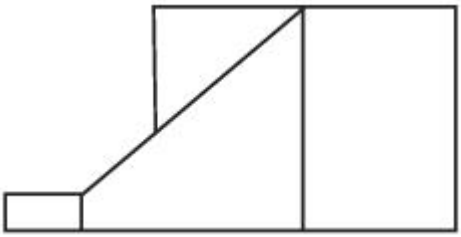
Question Number : 73 Question Id : 86435122598 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

The 3D figure shows view of an object, looking in the direction of arrow, identify the correct elevation from the answer figures.

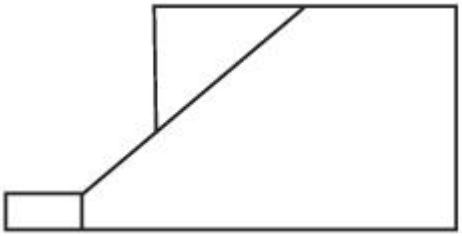


Options :

86435174969. 

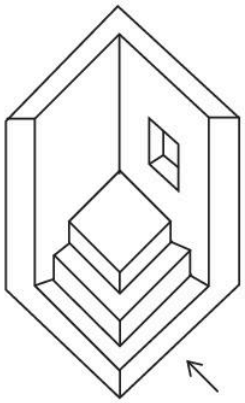
86435174970. 

86435174971. 

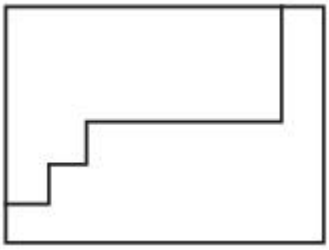
86435174972. 

Question Number : 74 Question Id : 86435122599 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

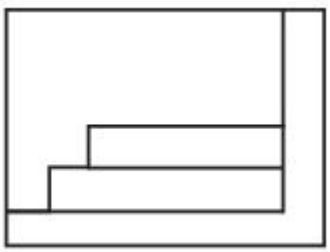
The 3D figure shows the view of an object. Identify the correct view looking in the direction of arrow, from the answer figure's.

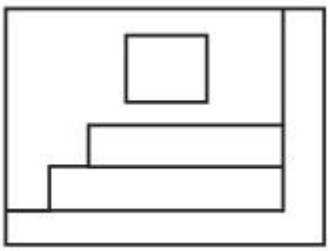


Options :

86435174973. 

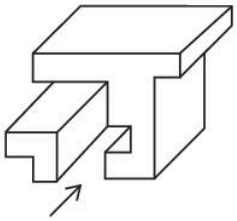
86435174974. 

86435174975. 

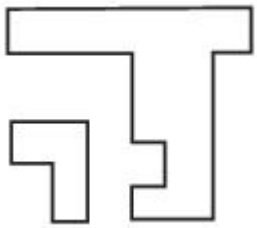
86435174976. 

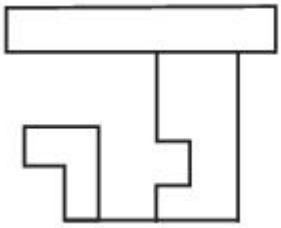
Question Number : 75 Question Id : 86435122600 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

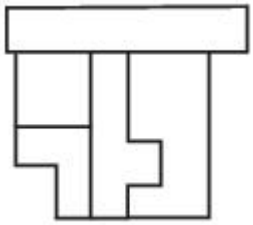
The 3D figures shows the view of an object. Identify the correct view looking in the direction of arrow, from the given answer figures.

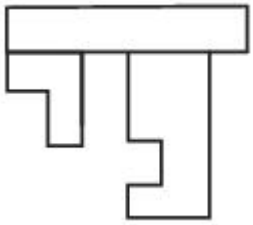


Options :

86435174977. 

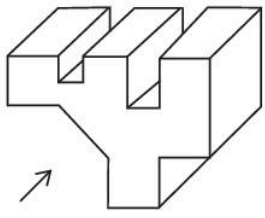
86435174978. 

86435174979. 

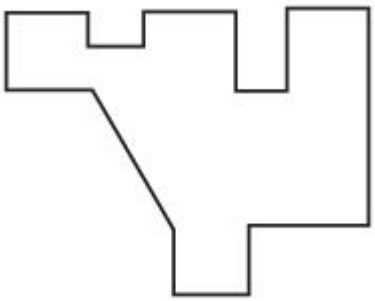
86435174980. 

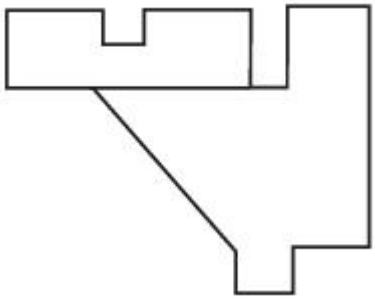
Question Number : 76 Question Id : 86435122601 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

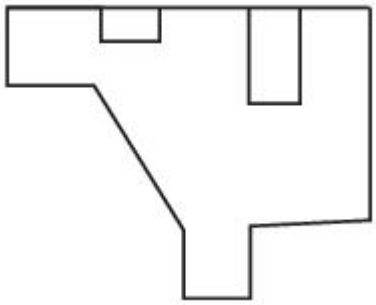
The 3D figure shows the view of an object. Identify the correct view looking in the direction of arrow, from the given answer figure's.

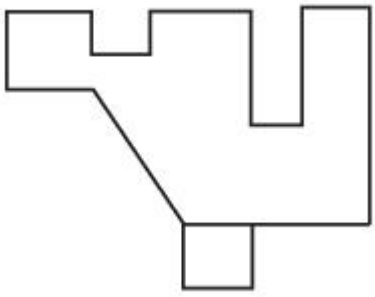


Options :

86435174981. 

86435174982. 

86435174983. 

86435174984. 

Question Number : 77 Question Id : 86435122602 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

One of the following answer figure is hidden in the problem figure in same size and direction.
Select to correct one.



Options :

86435174985. 

86435174986. 

86435174987. 

86435174988. 

Question Number : 78 Question Id : 86435122603 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

One of the following answer figure is hidden in the problem figure in same size and direction. Select correct one.



Options :

86435174989. 

86435174990. 

86435174991. 

86435174992. 

Question Number : 79 Question Id : 86435122604 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

One of the following answer figure is hidden in the problem figure in same size and direction. Select correct one.



Options :

86435174993. 

86435174994. 

86435174995. 

86435174996. 

Question Number : 80 Question Id : 86435122605 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Monsoon first reach to which state of India ?

Options :

86435174997. Gujarat

86435174998. Maharashtra

86435174999. Kerala

86435175000. Karnataka

Planning

Section Number :	4
Number of Questions :	25
Number of Questions to be attempted :	25
Section Marks :	100

Question Number : 81 Question Id : 86435122606 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Which is the most populated city in the world ?

Options :

86435175001. Delhi

86435175002. Shanghai

86435175003. Tokyo

86435175004. Sao Paulo

Question Number : 82 Question Id : 86435122607 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Which country organised the 'Earth Summit' in 1992 ?

Options :

86435175005. Sweden

86435175006. United Kingdom

86435175007. Brazil

86435175008. U.S.A.

Question Number : 83 Question Id : 86435122608 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Find the correct sequence in descending order for the hierarchy of plans with reference to the area.

Options :

86435175009. Regional Plan, Zonal Plan, Master Plan, Layout Plan.

86435175010. Regional Plan, Master Plan, Zonal Plan, Layout Plan.

86435175011. Master Plan, Regional Plan, Layout Plan, Zonal Plan.

86435175012. Zonal Plan, Layout Plan, Master Plan, Regional Plan.

Question Number : 84 Question Id : 86435122609 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Central government programme known as HRIDAY primarily focuses on :

Options :

86435175013. Hill towns

86435175014. Heritage cities

86435175015. Highland resources

86435175016. Highways, roads and infrastructure

Question Number : 85 Question Id : 86435122610 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Which of these cities are depicted in Charles Dickens's, "A Tale of two cities" ?

(A) London
(B) New York
(C) Venice
(D) Paris
(E) Warsaw

Choose the **correct** answer from the options given below :

Options :

86435175017. (A) and (B) only

86435175018. (A) and (D) only

86435175019. (C) and (D) only

86435175020. (B) and (E) only

Question Number : 86 Question Id : 86435122611 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Macth **List - I** with **List - II**.

	List - I		**List - II**
(A)	Paris	(I)	Petronas Tower
(B)	New York	(II)	Gardens by the Bay
(C)	Singapore	(III)	Louvre Museum
(D)	Kuala Lumpur	(IV)	Times Square

Choose the **correct** answer from the options given below :

Options :

86435175021. (A)-(II), (B)-(III), (C)-(IV), (D)-(I)

86435175022. (A)-(III), (B)-(IV), (C)-(II), (D)-(I)

86435175023. (A)-(III), (B)-(IV), (C)-(I), (D)-(II)

86435175024. (A)-(II), (B)-(I), (C)-(III), (D)-(IV)

Question Number : 87 Question Id : 86435122612 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Which among the following states in India is more prone to earthquake ?

Options :

86435175025. Kerala

86435175026. Assam

86435175027. West Bengal

86435175028. Madhya Pradesh

Question Number : 88 Question Id : 86435122613 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Which type of soil is available in the largest quantity in India ? Choose the correct answer.

Options :

86435175029. Black (Regular) soil

86435175030. Red soil

86435175031. Alluvial soil

86435175032. Mountain soil

Question Number : 89 Question Id : 86435122614 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

How many towns are there in India based on 2011 census ?

Options :

86435175033. 3000

86435175034. 4727

86435175035. 5687

86435175036. 7935

Question Number : 90 Question Id : 86435122615 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

In which city did "Lottery Committee" initiate town planning during 18^{th} century ?

Options :

86435175037. Calcutta

86435175038. Delhi

86435175039. Bombay

86435175040. Amritsar

Question Number : 91 Question Id : 86435122616 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

In defining a settlement as 'urban', which one of the following is the correct option ?

Options :

86435175041. 75% workers to be engaged in agricultural pursuits.

86435175042. 75% of male workers to be engaged in non-agricultural pursuits.

86435175043. 75% of workers to be engaged in non-agricultural pursuits.

86435175044. 75% of female workers to be engaged in non-agricultural pursuits.

Question Number : 92 Question Id : 86435122617 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

First printing press of Europe was named :

Options :

86435175045. Erasmus Printing Press

86435175046. The Gutenberg Press

86435175047. Britannica Press

86435175048. Vernacular Press

Question Number : 93 Question Id : 86435122618 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Statement I :

The thirteenth Five-Year Plan of India is being prepared for 2020-2025.

Statement II :

Since its inception in 1951, twelve five year plans have been prepared.

In the light of above statements, choose the **most appropriate** answer from the options given below :

Options :

86435175049. Both **statement I** and **statement II** are correct.

86435175050. Both **statement I** and **statement II** are incorrect.

86435175051. **Statement I** is correct but **statement II** is incorrect.

86435175052. **Statement I** is incorrect but **statement II** is correct.

Question Number : 94 Question Id : 86435122619 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

With how many states does the state of Madhya Pradesh share its border with ?

Options :

86435175053. 5

86435175054. 7

86435175055. 6

86435175056. 4

Question Number : 95 Question Id : 86435122620 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Arrange the following ratio scales in the ascending order :

(A) 1 : 4,000

(B) 1 : 5,000

(C) 1 : 30,000

(D) 1 : 250

(E) 1 : 750

Choose the **correct** answer from the options given below :

Options :

86435175057. (A) → (B) → (C) → (D) → (E)

86435175058. (D) → (E) → (A) → (B) → (C)

86435175059. (C) → (A) → (B) → (D) → (E)

86435175060. (C) → (B) → (A) → (E) → (D)

Question Number : 96 Question Id : 86435122621 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

To show proportion of an item to the whole, the preferred chart type would be :

Options :

86435175061. Pine diagram

86435175062. Scatter Plot

86435175063. Pie chart

86435175064. Gantt chart

Question Number : 97 Question Id : 86435122622 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Assertion A :

The U.S. has hegemony in the world based on its military power.

Reason R :

The U.S. absorbs about 65% of India's total experts in the software sector.

In the light of above statements, choose the **most appropriate** answer from the options given below :

Options :

86435175065. Both **(A)** and **(R)** are correct and **(R)** is the correct explanation of **(A)**.

86435175066. Both **(A)** and **(R)** are correct but **(R)** is not the correct explanation of **(A)**.

86435175067. **(A)** is correct but **(R)** is not correct.

86435175068. **(A)** is not correct but **(R)** is correct.

Question Number : 98 Question Id : 86435122623 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Burning wood for household cooking and heating is hazardous to health. Wood smoke contains dangerous toxins that can cause change in human cells. As such there must be some legislation to regulate use of wood-stoves and open-air fires.

Which of the following statements, if true, provide/s support for the above argument ?

(A) Dangerous toxins is higher in vehicle exhaust than in wood smoke.

(B) Smoke produced by coal-burning stoves is more toxic than wood-burning stoves.

(C) In areas where the legislation is to be implemented, the concentration of smoke results in poor air-quality.

(D) No significant beneficial effect on air quality by banning of wood for cooking.

(E) In areas where the legislation is to be implemented, wood is used by more than 50% households.

Choose the **most appropriate** answer from the options given below :

Options :

86435175069. (C) and (E) only

86435175070. (C) only

86435175071. (B) only

86435175072. (A) and (B) only

Question Number : 99 Question Id : 86435122624 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Past weather report for city X reveals that in the month of August, whenever the temperature was 38°C or above, the humidity level was 85% or higher. From this statement it can be concluded that the report which is not accurate for city X, for the month of August is :

Options :

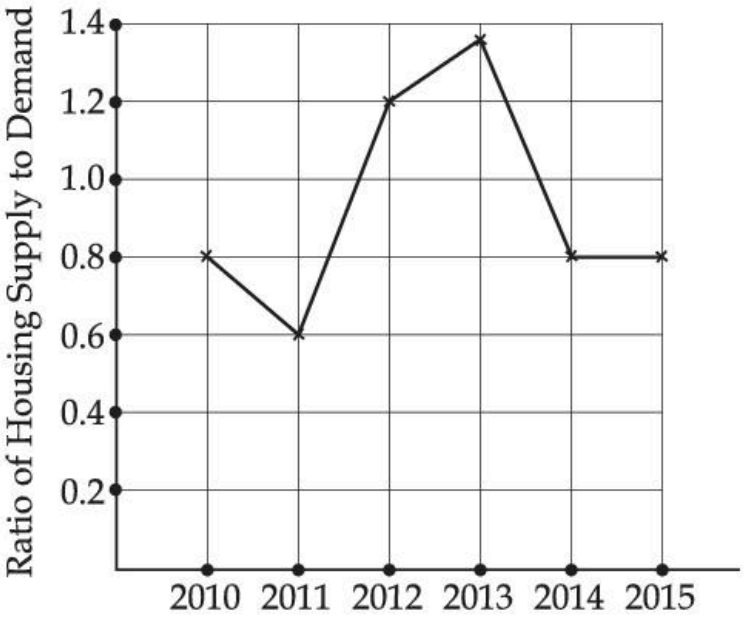
86435175073. 37°C, 82%

86435175074. 38°C, 84%

86435175075. 39°C, 85%

86435175076. 36°C, 80%

Question Number : 100 Question Id : 86435122625 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1



The above graph gives the ratio of housing supply to housing demand. How many years was the demand for housing more than its supply ?

Options :

86435175077. 4 years

86435175078. 2 years

86435175079. 1 year

86435175080. 5 years

Question Number : 101 Question Id : 86435122626 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Population of four cities from 1991-2011 (in millions).

Year	Delhi	Greater Mumbai	Kolkatta	Hyderabad
1991	9.4	12.5	10.97	4.1
2001	13.8	16.3	13.1	5.65
2011	16.8	18.4	14.0	7.5

Which city has grown at the highest rate between 2001-2011 ?

Options :

86435175081. Delhi

86435175082. Kolkatta

86435175083. Greater Mumbai

86435175084. Hyderabad

Question Number : 102 Question Id : 86435122627 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Which of the following is **not** the correct inference from the table ?

Year	Delhi	Greater Mumbai	Kolkatta	Hyderabad
1991	9.4	12.5	10.97	4.1
2001	13.8	16.3	13.1	5.65
2011	16.8	18.4	14.0	7.5

Options :

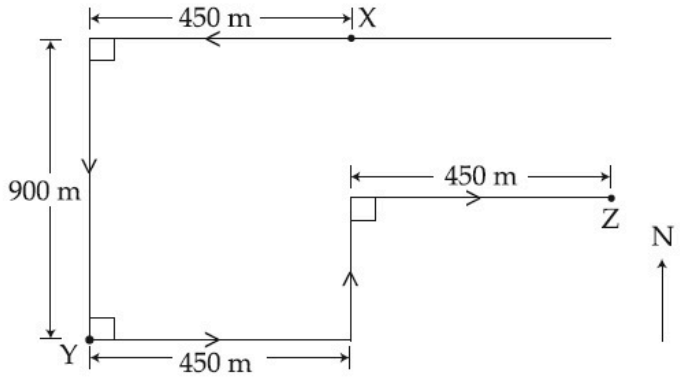
86435175085. Population growth rate was the highest for Delhi between 1991-2001.

86435175086. Total population of all cities in 2011 has doubled from total population in 1991.

86435175087. Population of Greater Mumbai is almost half of the total population of all cities in 2011.

86435175088. Kolkatta is growing at the slowest rate amongst all four cities.

Question Number : 103 Question Id : 86435122628 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1



John starts from his home at point X and follows the path shown in the diagram to reach the bank at point Y and then to his office at point Z.

Which of the following statements holds true ?

Options :

86435175089. John's bank is located west-south-west of his home.

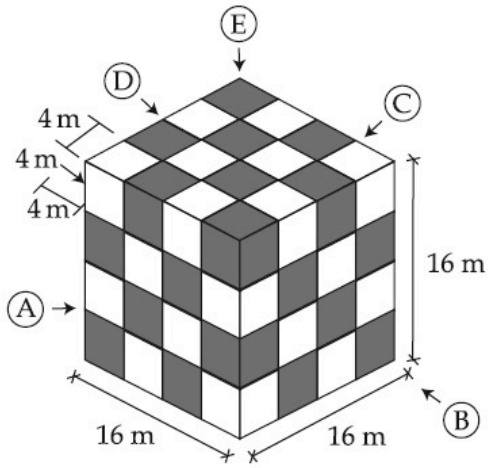
86435175090. John's bank is located north-east of his home.

86435175091. John's home is south-east of his office.

86435175092. John's home is north-west of his office.

Question Number : 104 Question Id : 86435122629 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

The drawing below shows a building block 16 m × 16 m × 16 m Black and White surfaces are cubes visible on all four vertical surfaces and top surface, except the base. Calculate the total volume of black cubes that are visible from all sides except the base. Find the correct answer.



Options :

86435175093. 2048 cu.m.

86435175094. 1536 cu.m.

86435175095. 1664 cu.m.

86435175096. 4028 cu.m.

Question Number : 105 Question Id : 86435122630 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

In the tribal arts of India, the traditional tribal Bastar art is famous around all over the world. This art is practiced by tribal of Bastar region of India and is known throughout the world for their unique art works. The tribal communities of Bastar have been protecting this rare art from generation to generation, but in absence of publicity it is restricted to weekly 'haat' and markets. This art is made by conventional tools rather than using the modern excellent machines. Bastar art can be divided mainly into wood work, bamboo art, soil art and metal arts.

Wood art works are mainly used in wooden material to make Bastar culture, festivals, creatures of gods, statues of gods and goddesses and decorations. Bamboo art is made with bamboo sheets, chairs, living room, table, baskets, mats and home furnishings are made. In soil art, the statues of goddesses, decorative utensils, vases, pots and household furnishings are made. In the metal arts, artifacts of copper and tin mixed metal are made, mainly in which statues of goddesses, idols of worship, idols of tribal culture and home furnishings are made.

With reference to the passage above, choose the **correct** statement.

Options :

86435175097. Bastar art is a traditional art of Bihar.

86435175098. Bastar statues are widely worshipped in Bastar region.

86435175099. Bastar art is machine made and rarely done through conventional tools.

86435175100. Bastar art is available in metal, wood, bamboo and soil.