National Testing Agency

Question Paper Name :	JEE Main 2021 Paper 2B (B.Planning) Feb 23 Single sitting
Subject Name :	Paper 2B (B.Planning)
Creation Date :	2021-02-22 14:03:33
Duration :	180
Total Marks :	400

Paper 2B (B.Planning)

Group Id : 708191140

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 : 70819113002 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

The value of the integral $\int_{-4}^{4}\left|9-x^2\right|dx$ is :

Options :

70819142831. $\frac{121}{3}$

70819142832. $\frac{122}{3}$

70819142833. $\frac{125}{3}$

70819142834. $\frac{128}{3}$

Question Number : 2 Question Id : 70819113003 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

The sum of infinite number of terms of a Geometric Progression is 3 and the sum of the squares of its terms is $\frac{9}{2}$. The sum of the cubes of its terms is :

Options :

70819142835. $\frac{31}{13}$

70819142836. $\frac{108}{13}$

70819142837. $\frac{27}{2}$

70819142838. $\frac{54}{7}$

Question Number : 3 Question Id : 70819113004 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Which of the following Boolean expression is a tautology ?

Options :

70819142839. $p \Leftrightarrow p \vee q$

70819142840. $(p \wedge q) \Leftrightarrow p$

70819142841. $(p \wedge (\sim p \vee q)) \vee (\sim q)$

70819142842. $(p \vee \sim p) \wedge (q \vee (\sim q))$

Question Number : 4 Question Id : 70819113005 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Let $|a|<1$, $|b|<1$, $|c|<1$ and $x=\sum_{n=0}^{\infty} a^n$, $y=\sum_{n=0}^{\infty} b^n$, $z=\sum_{n=0}^{\infty} c^n$. If $\frac{1}{x}, \frac{1}{y}, \frac{1}{z}$ are in Arithmetic Progression, then :

Options :

70819142843. a, b and c are in Arithmetic Progression

70819142844. a, b and c are in Geometric Progression

70819142845. a, 2b and c are in Arithmetic Progression

70819142846. a, b and c satisfy $2b^2=ac$

Question Number : 5 Question Id : 70819113006 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

$\sum_{n=1}^{\infty} \frac{2n^2+7n+5}{n!}$ is equal to :

Options :

70819142847. $15e+5$

70819142848. $15e-5$

70819142849. $16e-5$

70819142850. $16e-7$

Question Number : 6 Question Id : 70819113007 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

The least positive integral value of λ such that $10^{50}+(3\times(4)^{52})+\lambda$ is divisible by 9 is :

Options :

70819142851. 5

70819142852. 3

70819142853. 7

70819142854. 1

Question Number : 7 Question Id : 70819113008 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

There are 4, 5 and 6 points on the three parallel and co-planar lines. If no set of four or more points is cyclic and no set of three points lying on distinct lines is collinear, then the number of circles passing through exactly three points is :

Options :

70819142855. 455

70819142856. 421

70819142857. 435

70819142858. 441

Question Number : 8 Question Id : 70819113009 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

If $y=\frac{ax-b}{(x-1)(x-4)}$ has an extremum at the point $(2,-1)$, then the values of a and b are :

Options :

70819142859. $a=1,\ b=0$

70819142860. $a=0,\ b=1$

70819142861. $a=0,\ b=-1$

70819142862. $a=-1,\ b=1$

Question Number : 9 Question Id : 70819113010 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

The distance between the planes $\vec{r}\cdot\left(2\hat{i}+\hat{j}-2\hat{k}\right)+5=0$ and $\vec{r}\cdot\left(6\hat{i}+3\hat{j}-6\hat{k}\right)+2=0$ is :

Options :

70819142863. $\frac{9}{13}$

70819142864. $\frac{15}{4}$

70819142865. $\frac{13}{9}$

70819142866. $\frac{1}{13}$

Question Number : 10 Question Id : 70819113011 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

The probability of solving a problem in Mathematics by two students X and Y are $\frac{1}{4}$ and $\frac{1}{5}$ respectively. If both of them try to solve the problem independently, then the probability that the problem will be solved by exactly one of them is equal to :

Options :

70819142867. $\frac{7}{20}$

70819142868. $\frac{1}{20}$

70819142869. $\frac{19}{20}$

70819142870. $\frac{12}{20}$

Question Number : 11 Question Id : 70819113012 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

The polar form of the complex number $\frac{1+i}{1-i}$ is equal to :

Options :

70819142871. $\cos\frac{\pi}{2}+i\sin\frac{\pi}{2}$

70819142872. $\cos\frac{\pi}{2}-i\sin\frac{\pi}{2}$

70819142873. $\cos\frac{\pi}{4}+i\sin\frac{\pi}{4}$

70819142874. $\cos\frac{\pi}{4}-i\sin\frac{\pi}{4}$

Question Number : 12 Question Id : 70819113013 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

If the equation of a line which divides the line segment joining the points (1, 0) and (3, 0) in the ratio 2 : 1 and is also perpendicular to it, is $ax=7$, then the value of a is equal to :

Options :

70819142875. 2

70819142876. 3

70819142877. 4

70819142878. 1

Question Number : 13 Question Id : 70819113014 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Equation of the circle, which is the mirror image of the circle $x^2+y^2-2x=0$ with respect to the line $x+y=2$, is :

Options :

70819142879. $x^2+y^2-2x+4y+3=0$

70819142880. $x^2+y^2-4x-2y+4=0$

70819142881. $2(x^2+y^2)-x+y+1=0$

70819142882. $x^2+y^2-2x-4y+3=0$

Question Number : 14 Question Id : 70819113015 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Equations of the common tangent of the ellipse $\frac{(x+1)^2}{2^2}+\frac{(y-1)^2}{3^2}=1$ and the circle $(x+1)^2+(y-1)^2=4$ are :

Options :

70819142883. $y+3=0$ and $x-1=0$

70819142884. $x-3=0$ and $y+1=0$

70819142885. $x+3=0$ and $x-1=0$

70819142886. $y+3=0$ and $y-1=0$

Question Number : 15 Question Id : 70819113016 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

If $A=\begin{bmatrix}1 & a\\ 0 & 1\end{bmatrix}$, then A^k $(k\in N)$ is :

Options :

70819142887. $\begin{bmatrix}1 & ka\\ 0 & 1\end{bmatrix}$

70819142888. $\begin{bmatrix} 1 & k^2a \\ 0 & 1 \end{bmatrix}$

70819142889. $\begin{bmatrix} k & ka \\ 0 & k \end{bmatrix}$

70819142890. $\begin{bmatrix} 1 & ka \\ 0 & 0 \end{bmatrix}$

Question Number : 16 Question Id : 70819113017 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

The values of s and t, for which the system of equations

$$x_1 + x_2 + x_3 = 5$$
$$x_1 + 2x_2 + 3x_3 = 9$$
$$x_1 + 3x_2 + sx_3 = t$$

has no solution, are :

Options :

70819142891. $s = 5,\ t = 13$

70819142892. $s \neq 5$

70819142893. $s = 5,\ t \neq 13$

70819142894. $t \neq 13$

Question Number : 17 Question Id : 70819113018 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Derivative of $\tan^{-1}\left(\frac{2x}{1-x^2}\right)$ with respect to $\sin^{-1}\left(\frac{2x}{1+x^2}\right)$ in $(1, \infty)$, is :

Options :

70819142895. 1

70819142896. -1

70819142897. 0

70819142898. 2

Question Number : 18 Question Id : 70819113019 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Let $\vec{a}$, $\vec{b}$ and $\vec{c}$ be three vectors such that $|\vec{a}|=|\vec{b}|=\frac{|\vec{c}|}{2}=1$. If $\vec{a}\times(\vec{a}\times\vec{c})+\vec{b}=\vec{0}$, then the acute angle between $\vec{a}$ and $\vec{c}$ is :

Options :

70819142899. $\frac{\pi}{6}$

70819142900. $\frac{\pi}{4}$

70819142901. $\frac{\pi}{3}$

70819142902. $\frac{5\pi}{12}$

Question Number : 19 Question Id : 70819113020 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Solution of the differential equation $(1+y^2)dx=(\tan^{-1}y-x)dy$ is :
(where c is an arbitrary constant)

Options :

70819142903. $x=1-\tan^{-1}y+ce^{-\tan^{-1}y}$

70819142904. $y=\tan^{-1}y-1+ce^{-\tan^{-1}x}$

70819142905. $x=\tan^{-1}y-1+ce^{-\tan^{-1}y}$

70819142906. $x=-\tan^{-1}y-1-ce^{\tan^{-1}x}$

Question Number : 20 Question Id : 70819113021 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

The values of x, for which the vectors $\vec{a}=(x^2-16)\hat{i}+4\hat{j}-(x^2-25)\hat{k}$ make acute angles with the (positive directions of) coordinate axes lie in :

Options :

70819142907. $[-5,\ -4]\cup[4,\ 5]$

70819142908. $[-5,\ 4)\cup(-4,\ 5]$

70819142909. $(-5,\ -4)\cup(4,\ 5)$

70819142910. $(-5,\ 4)\cup(-4,\ 5)$

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 : 70819113022 Question Type : SA Correct Marks : 4 Wrong Marks : 0

$\int_0^{\pi} \sqrt{\frac{1+\cos 2x}{2}}\, dx$ is _____.

Question Number : 22 Question Id : 70819113023 Question Type : SA Correct Marks : 4 Wrong Marks : 0

The minimum value of $9\tan^2\theta + 4\cot^2\theta$ is _____.

Question Number : 23 Question Id : 70819113024 Question Type : SA Correct Marks : 4 Wrong Marks : 0

The length of the perpendicular from the point (1, 2, 3) to the line $\frac{-x+6}{-3} = \frac{y-7}{2} = \frac{z-7}{-2}$ is _____.

Question Number : 24 Question Id : 70819113025 Question Type : SA Correct Marks : 4 Wrong Marks : 0

If $\log_3 2$, $\log_3(2^x - 5)$ and $\log_3\left(2^x - \frac{7}{2}\right)$ are in Arithmetic Progression, then the value of x is _____.

Question Number : 25 Question Id : 70819113026 Question Type : SA Correct Marks : 4 Wrong Marks : 0

If $x^2 + x + 1 = 0$, then $\left(x - \frac{1}{x}\right)^2 + \left(x^2 - \frac{1}{x^2}\right)^2 + \left(x^3 - \frac{1}{x^3}\right)^2$ is _____.

Question Number : 26 Question Id : 70819113027 Question Type : SA Correct Marks : 4 Wrong Marks : 0

$x^2 + y^2 - 4x - 2y - 11 = 0$ is a circle to which tangents are drawn from the point (4, 5) which form a quadrilateral with a pair of radii. The area of this quadrilateral in square units is _____.

Question Number : 27 Question Id : 70819113028 Question Type : SA Correct Marks : 4 Wrong Marks : 0

If the sum of mean and variance of a binomial distribution is 15 and the sum of their squares is 117, then the number of independent trials is equal to _____.

Question Number : 28 Question Id : 70819113029 Question Type : SA Correct Marks : 4 Wrong Marks : 0

Let the equation of the plane passing through the points (1, 2, 6), (2, 5, 7) and perpendicular to the plane $4x - y + z = 15$ be $ax + by + cz + d = 0$. If a, b, c, $d \in \mathbf{Z}$ with gcd $(|a|, |b|, |c|) = 1$, then $|a + b + c + d|$ is equal to _____.

Question Number : 29 Question Id : 70819113030 Question Type : SA Correct Marks : 4 Wrong Marks : 0

The number of real solutions in the interval $\left[-\frac{3\pi}{2}, \frac{7\pi}{2}\right]$ of the equation $4\sin^2 x - 8\sin x + 3 = 0$ is _____.

Question Number : 30 Question Id : 70819113031 Question Type : SA Correct Marks : 4 Wrong Marks : 0

Let $A_1, A_2, A_3, \ldots\ldots$ be an increasing geometric progression. If $\frac{1}{A_4}+\frac{1}{A_8}=\frac{10}{63}$ and $A_5A_7=441$, then $3(A_2+A_4)$ 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 : 70819113032 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Which among the following is the full form of the 'UNESCO' ?

Options :

70819142921. United Nations Educational, Scientific & Cultural Organization.

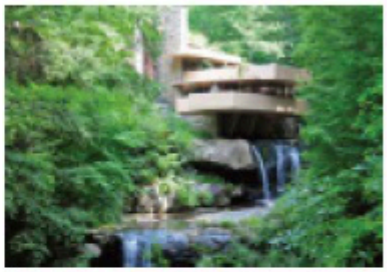
70819142922. United Nations Educational Security Cultural Organization.

70819142923. United Nations Entrance Site Calling Organization.

70819142924. United Nations Educational, Sustainable & Cultural Organization.

Question Number : 32 Question Id : 70819113033 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Match List - I with List - II.

List - I		List - II
(I) Hall of Nation	(a)	
(II) Falling Water, Pennsylvania	(b)	
(III) Petronas Tower	(c)	
(IV) Secretariat	(d)	

Options :

70819142925. (I)-(b), (II)-(a), (III)-(d), (IV)-(c)

70819142926. (I)-(c), (II)-(d), (III)-(a), (IV)-(b)

70819142927. (I)-(a), (II)-(b), (III)-(c), (IV)-(d)

70819142928. (I)-(b), (II)-(a), (III)-(c), (IV)-(d)

Question Number : 33 Question Id : 70819113034 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Match List - I with List - II.

	List - I		List - II
(I)	Kamru	(a)	Victoria Memorial Hall
(II)	Delhi	(b)	Badrinath Temple
(III)	Fatehpur Sikri	(c)	Khirki Masjid
(IV)	Kolkata	(d)	Buland Darwaja

Options :

70819142929. (I)-(b), (II)-(c), (III)-(d), (IV)-(a)

70819142930. (I)-(b), (II)-(d), (III)-(c), (IV)-(a)

70819142931. (I)-(c), (II)-(a), (III)-(b), (IV)-(d)

70819142932. (I)-(b), (II)-(a), (III)-(d), (IV)-(c)

Question Number : 34 Question Id : 70819113035 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Match List - I with List - II.

List - I	List - II
(I) Agra fort	(a) 
(II) Atala Masjid	(b) 
(III) Nalanda University	(c) 
(IV) Jagannatha Temple	(d) 

Options :

70819142933. (I)-(b), (II)-(c), (III)-(a), (IV)-(d)

70819142934. (I)-(a), (II)-(b), (III)-(c), (IV)-(d)

70819142935. (I)-(c), (II)-(a), (III)-(d), (IV)-(b)

70819142936. (I)-(b), (II)-(a), (III)-(c), (IV)-(d)

Question Number : 35 Question Id : 70819113036 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Match List - I with List - II.

	List - I		List - II
(I)	Yadvindra Garden	(a)	Manali
(II)	Vishnu Temple	(b)	Amritsar
(III)	Hidimba Temple	(c)	Pinjore
(IV)	Hari Mandir	(d)	Buniyar

Options :

70819142937. (I)-(c), (II)-(d), (III)-(b), (IV)-(a)

70819142938. (I)-(c), (II)-(d), (III)-(a), (IV)-(b)

70819142939. (I)-(d), (II)-(b), (III)-(c), (IV)-(a)

70819142940. (I)-(b), (II)-(d), (III)-(a), (IV)-(c)

Question Number : 36 Question Id : 70819113037 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Match List - I with List - II.

	List - I		List - II
(I)	Mehrangarh Fort	(a)	Hyderabad
(II)	Siri Fort	(b)	Kolkata
(III)	Golconda Fort	(c)	Delhi
(IV)	Fort William	(d)	Jodhpur

Choose the correct answer from options given below :

Options :

70819142941. (I)-(a), (II)-(d), (III)-(b), (IV)-(c)

70819142942. (I)-(d), (II)-(c), (III)-(a), (IV)-(b)

70819142943. (I)-(d), (II)-(c), (III)-(b), (IV)-(a)

70819142944. (I)-(a), (II)-(b), (III)-(d), (IV)-(c)

Question Number : 37 Question Id : 70819113038 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Book 'God of small things' is written by which Indian Architect ?

Options :

70819142945. B.V. Doshi

70819142946. Arundhati Roy

70819142947. Revati Kamat

70819142948. Bimal Patel

Question Number : 38 Question Id : 70819113039 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

'Jharokha' is a type of window mostly found in :

Options :

70819142949. Gujarat

70819142950. West Bengal

70819142951. Tamil Nadu

70819142952. Rajasthan

Question Number : 39 Question Id : 70819113040 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

The monsoon wind enters in Indian sub-continent from which direction ?

Options :

70819142953. North-West side

70819142954. South-East side

70819142955. North side

70819142956. South-West side

Question Number : 40 Question Id : 70819113041 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Which of the following building represents the colonial Architectural pattern in India ?

Options :

70819142957. Bharat Bhavan in Bhopal

70819142958. LIC Building in Delhi

70819142959. Charminar in Hyderabad

70819142960. Victoria Memorial in Kolkata

Question Number : 41 Question Id : 70819113042 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

What is the size of A2 Drawing sheet ?

Options :

70819142961. 420×590 (mm $\times$ mm)

70819142962. 420×594 (mm × mm)

70819142963. 297×420 (mm × mm)

70819142964. 420×592 (mm × mm)

Question Number : 42 Question Id : 70819113043 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Victory Tower belongs to which of the following fort :

Options :

70819142965. Chittor fort

70819142966. Jaigarh fort

70819142967. Bhangarh fort

70819142968. Amer fort

Question Number : 43 Question Id : 70819113044 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Which amongst the following Architect has designed the famous Temple "Akshardham" ?

Options :

70819142969. Sanjay Puri

70819142970. Vikram Lall

70819142971. Ashok Lall

70819142972. C. Sompura

Question Number : 44 Question Id : 70819113045 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

'Volume Zero' Documentary is on which Architect ?

Options :

70819142973. Charles Correa

70819142974. Richard Mier

70819142975. Jasbir Sachdev

70819142976. Ranjit Sabliki

Question Number : 45 Question Id : 70819113046 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

'Agenda 21' is declaration related with :

Options :

70819142977. Climate change

70819142978. Global warming

70819142979. Sustainable development

70819142980. Smart city

Question Number : 46 Question Id : 70819113047 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Gold mines are situated in which state of India ?

Options :

70819142981. Karnataka

70819142982. Orissa

70819142983. Maharashtra

70819142984. Uttar Pradesh

Question Number : 47 Question Id : 70819113048 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

In the Southern Hemisphere shadowless light is from which direction ?

Options :

70819142985. North

70819142986. South

70819142987. East

70819142988. West

Question Number : 48 Question Id : 70819113049 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

The first Indian Architect who has won Pritzker Prize in 2018 is :

Options :

70819142989. B.V. Doshi

70819142990. Laurie Baker

70819142991. Raj Rewal

70819142992. Achyut Kanvinde

Question Number : 49 Question Id : 70819113050 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Word "Bungalow" has originated from :

Options :

70819142993. Bengalurm

70819142994. Banaras

70819142995. Bengal

70819142996. Bari

Question Number : 50 Question Id : 70819113051 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

The IIM - Ahmedabad is designed by which of the following Architect ?

Options :

70819142997. Laurie Baker

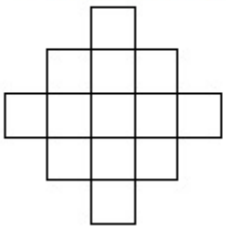
70819142998. Louis Kahn

70819142999. Lutyen

70819143000. Le Corbusier

Question Number : 51 Question Id : 70819113052 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

In the given figure, how many squares are present ?



Options :

70819143001. 14

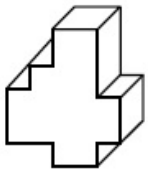
70819143002. 13

70819143003. 15

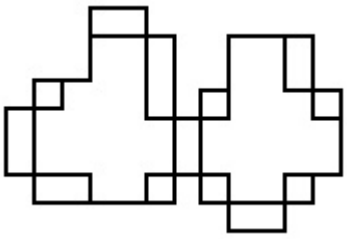
70819143004. 18

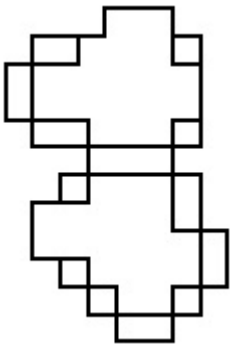
Question Number : 52 Question Id : 70819113053 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

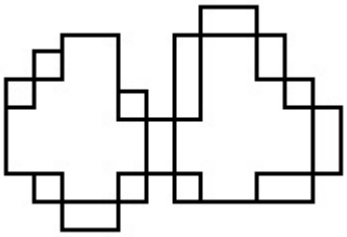
A drawing is provided with all the folds to construct the following three Dimensional object. Select the correct one.

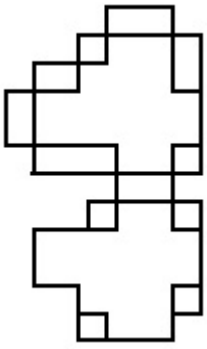


Options :

70819143005. 

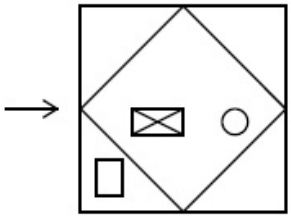
70819143006. 

70819143007. 

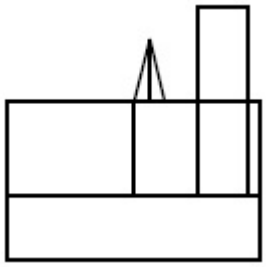
70819143008. 

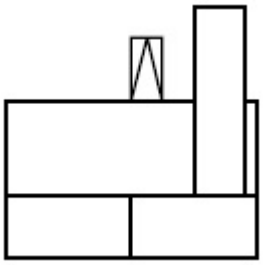
Question Number : 53 Question Id : 70819113054 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

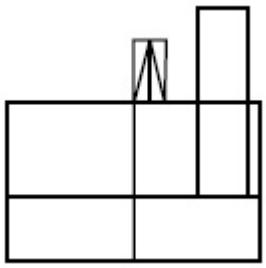
The problem figure shows the top view of an object. Identify the correct view looking in the direction of arrow, amongst the answer figures.

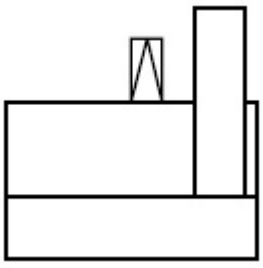


Options :

70819143009. 

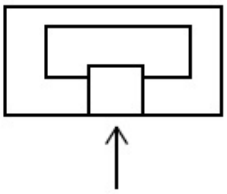
70819143010. 

70819143011. 

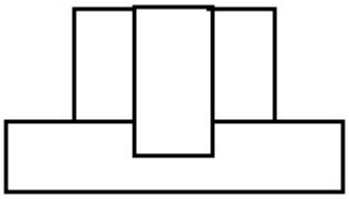
70819143012. 

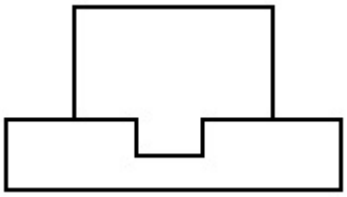
Question Number : 54 Question Id : 70819113055 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

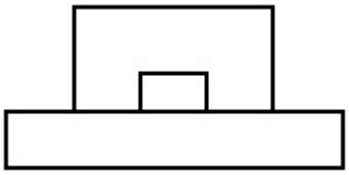
The problem figure shows the top view of an object. Identify the correct elevation amongst the answer figures looking in the direction of arrow.



Options :

70819143013. 

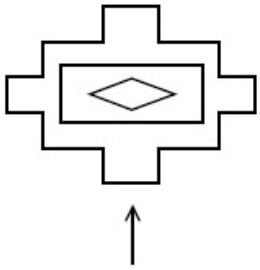
70819143014. 

70819143015. 

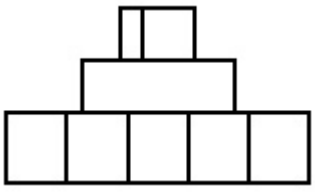
70819143016. 

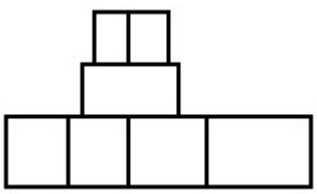
Question Number : 55 Question Id : 70819113056 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

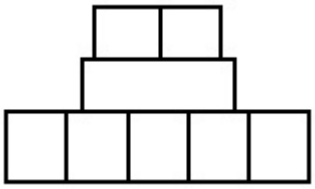
The problem figure shows the top view of an object. Identify the correct elevation amongst the answer figures looking in the direction of arrow.

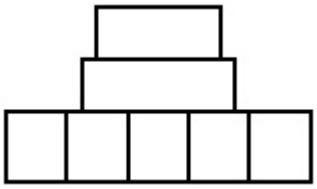


Options :

70819143017. 

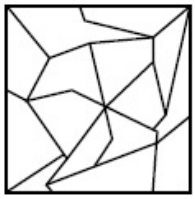
70819143018. 

70819143019. 

70819143020. 

Question Number : 56 Question Id : 70819113057 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

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



Options :

70819143021. 

70819143022. 

70819143023. 

70819143024. 

Question Number : 57 Question Id : 70819113058 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

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



Options :

70819143025. 

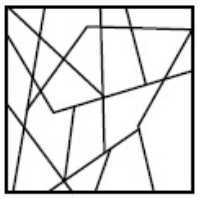
70819143026. 

70819143027. 

70819143028. 

Question Number : 58 Question Id : 70819113059 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

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



Options :

70819143029. 

70819143030. 

70819143031. 

70819143032. 

Question Number : 59 Question Id : 70819113060 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

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



Options :

70819143033. 

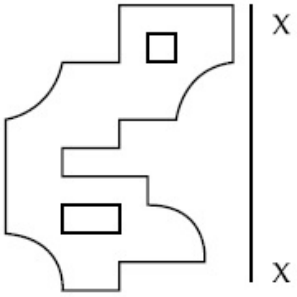
70819143034. 

70819143035. 

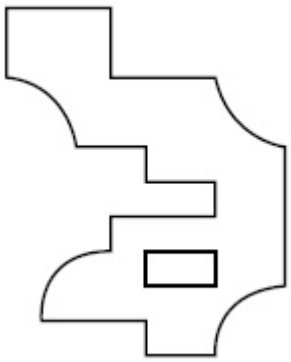
70819143036. 

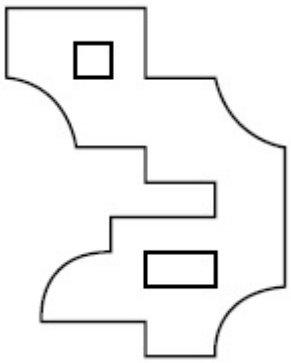
Question Number : 60 Question Id : 70819113061 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

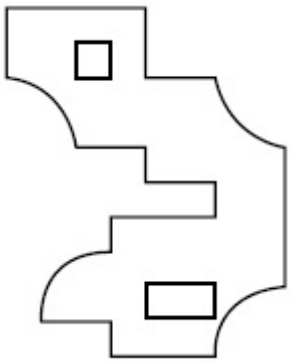
Which one of the answer figures is correct mirror image of problem figure with respect to X-X ?

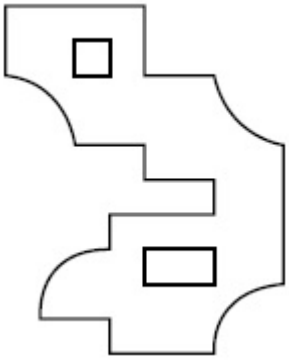


Options :

70819143037. 

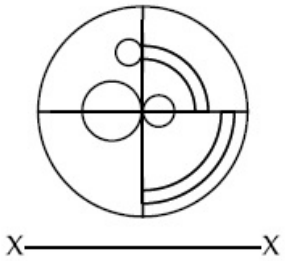
70819143038. 

70819143039. 

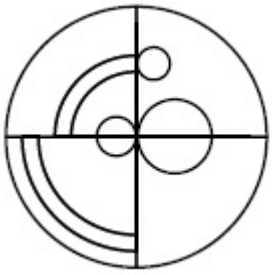
70819143040. 

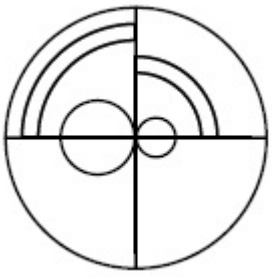
Question Number : 61 Question Id : 70819113062 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

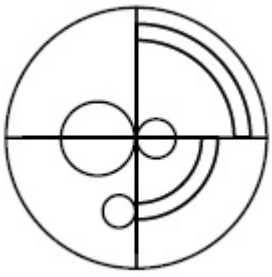
Which one of the answer figures is the correct mirror image of the problem figure with respect to X-X ?

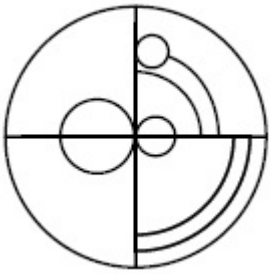


Options :

70819143041. 

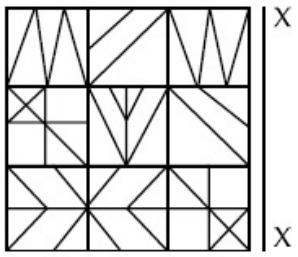
70819143042. 

70819143043. 

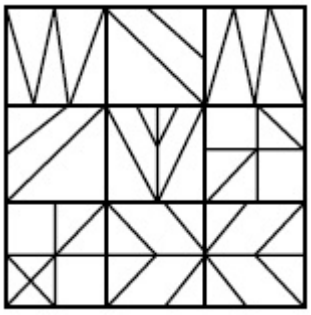
70819143044. 

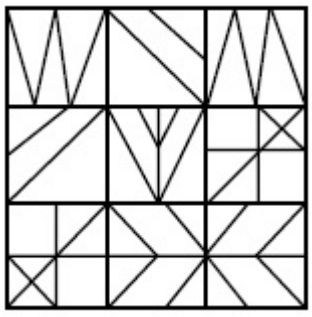
Question Number : 62 Question Id : 70819113063 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

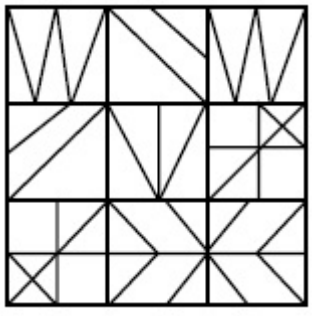
Which one of the answer figures is the correct mirror image of the problem figure with respect to X-X ?

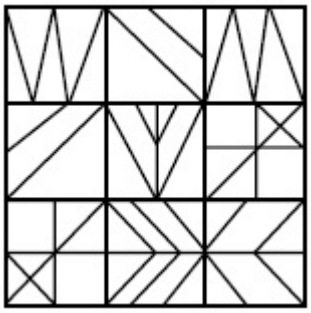


Options :

70819143045. 

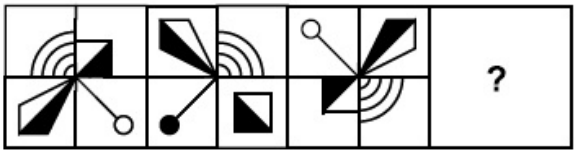
70819143046. 

70819143047. 

70819143048. 

Question Number : 63 Question Id : 70819113064 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Which one of the answer figures complete the sequence of the problem figure ? Select the correct one.



Options :

70819143049. 

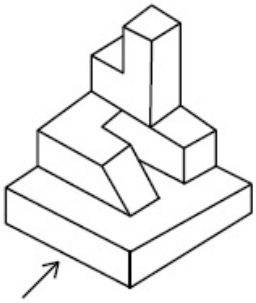
70819143050. 

70819143051. 

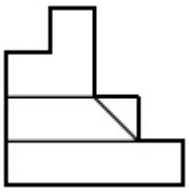
70819143052. 

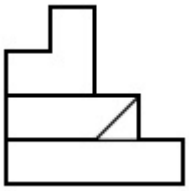
Question Number : 64 Question Id : 70819113065 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

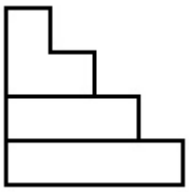
The 3D figure shows the view of an object. Identify the correct view looking in the direction of arrow, amongst the answer figures.

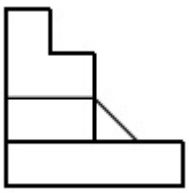


Options :

70819143053. 

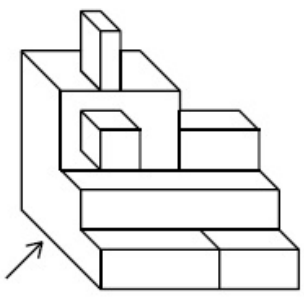
70819143054. 

70819143055. 

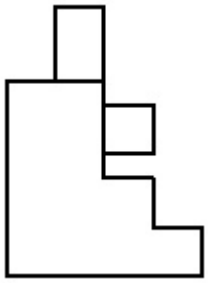
70819143056. 

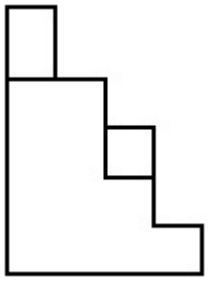
Question Number : 65 Question Id : 70819113066 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

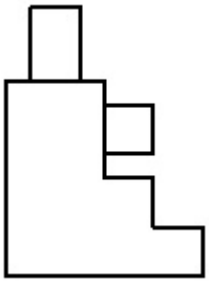
The 3D figure shows the view of an object. Identify the correct view looking in the direction of arrow, amongst the answer figures.

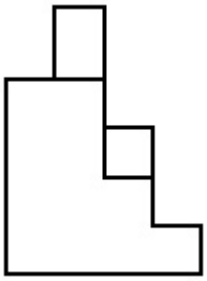


Options :

70819143057. 

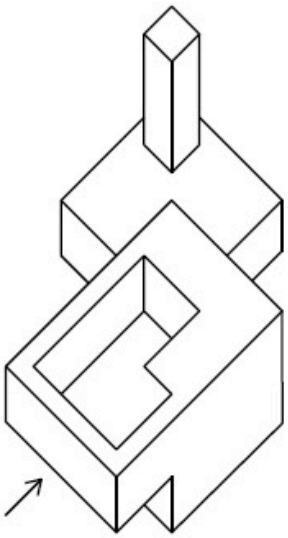
70819143058. 

70819143059. 

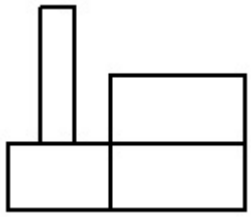
70819143060. 

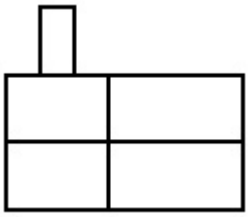
Question Number : 66 Question Id : 70819113067 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

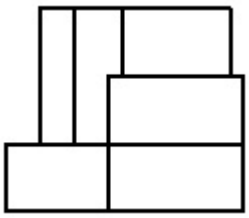
The 3D figure shows the view of an object. Identify the correct view looking in the direction of arrow, amongst the answer figures.

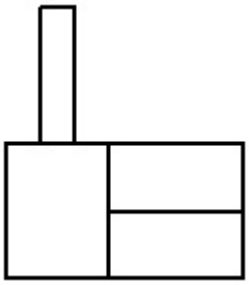


Options :

70819143061. 

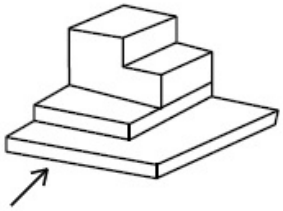
70819143062. 

70819143063. 

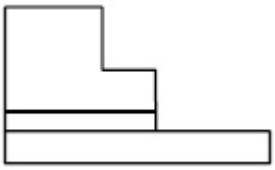
70819143064. 

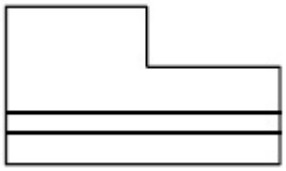
Question Number : 67 Question Id : 70819113068 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

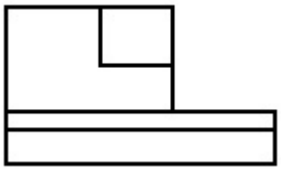
The 3D figure shows the view of an object. Identify the correct view looking in the direction of arrow, amongst the answer figures.

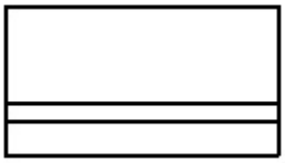


Options :

70819143065. 

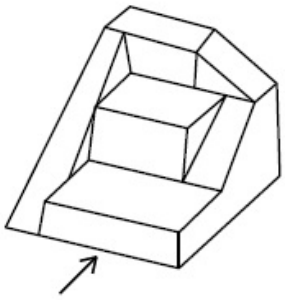
70819143066. 

70819143067. 

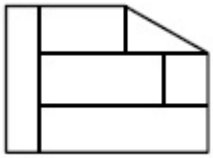
70819143068. 

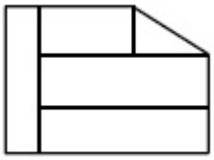
Question Number : 68 Question Id : 70819113069 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

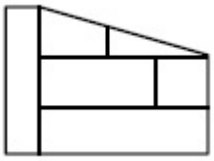
The 3D figure shows the view of an object. Identify the correct view looking in the direction of arrow, amongst the answer figures.

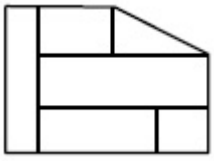


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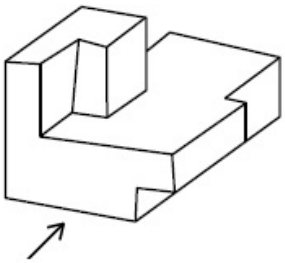
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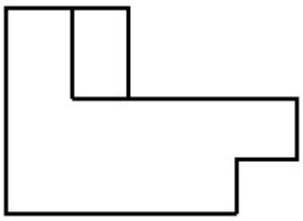
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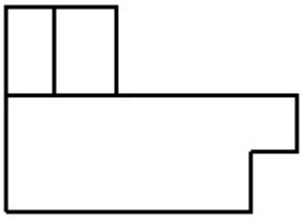
Question Number : 69 Question Id : 70819113070 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

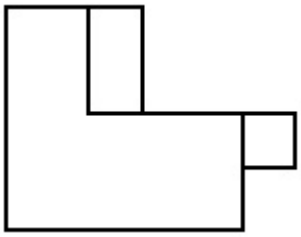
The 3D figure shows the view of an object. Identify the correct view looking in the direction of arrow, amongst the answer figures.

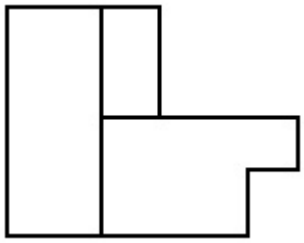


Options :

70819143073. 

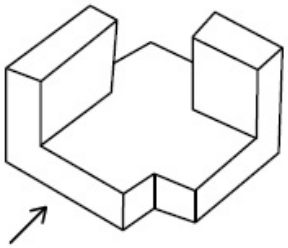
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70819143075. 

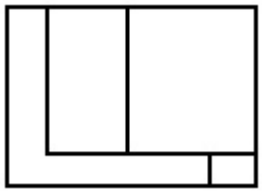
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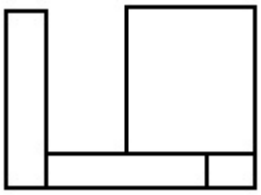
Question Number : 70 Question Id : 70819113071 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

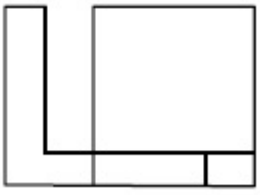
The 3D figure shows the view of an object. Identify the correct view looking in the direction of arrow, amongst the answer figures.

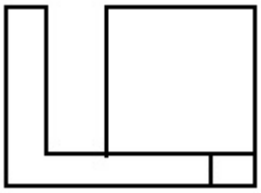


Options :

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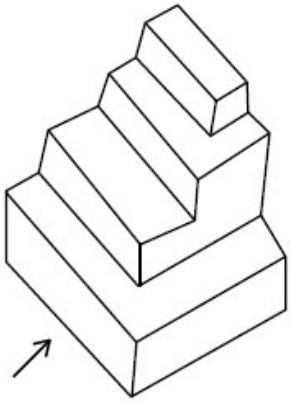
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70819143079. 

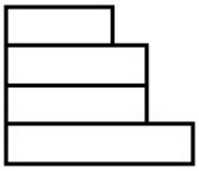
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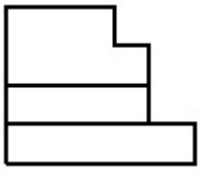
Question Number : 71 Question Id : 70819113072 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

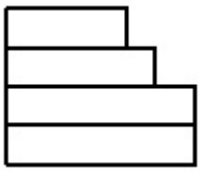
The 3D figure shows the view of an object. Identify the correct view looking in the direction of arrow, amongst the answer figures.

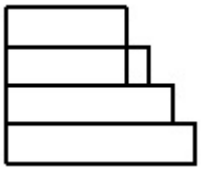


Options :

70819143081. 

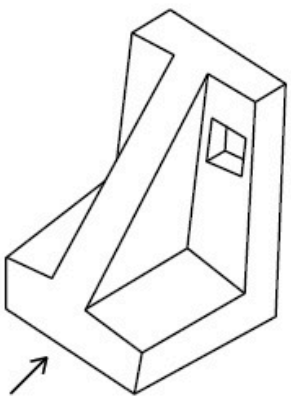
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70819143083. 

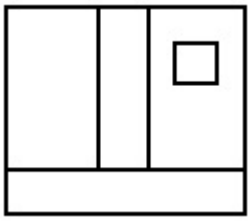
70819143084. 

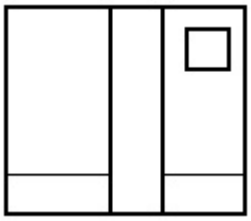
Question Number : 72 Question Id : 70819113073 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

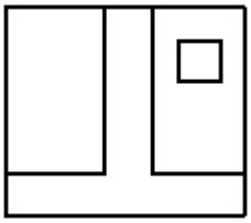
The 3D figure shows the view of an object. Identify the correct view looking in the direction of arrow, amongst the answer figures.

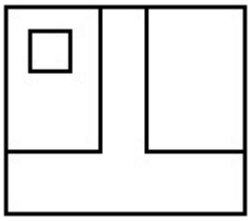


Options :

1. 

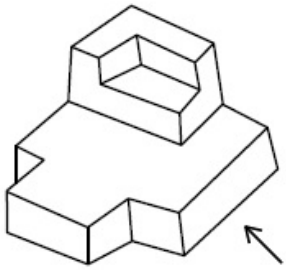
2. 

3. 

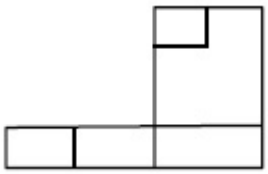
4. 

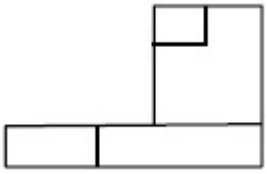
Question Number : 73 Question Id : 70819113074 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

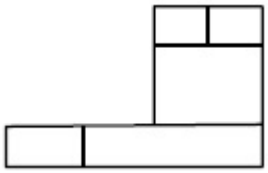
The 3D figure shows the view of an object. Identify the correct view looking in the direction of arrow, amongst the answer figures.

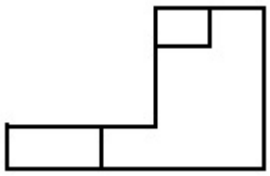


Options :

70819143089. 

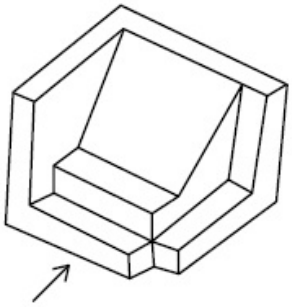
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70819143091. 

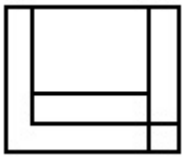
70819143092. 

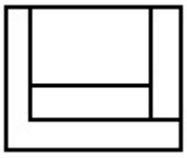
Question Number : 74 Question Id : 70819113075 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

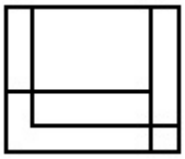
The 3D figure shows the view of an object. Identify the correct view looking in the direction of arrow, amongst the answer figures.

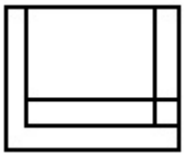


Options :

70819143093. 

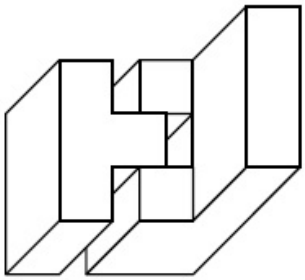
70819143094. 

70819143095. 

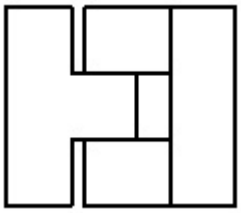
70819143096. 

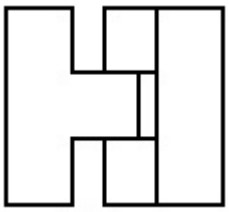
Question Number : 75 Question Id : 70819113076 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

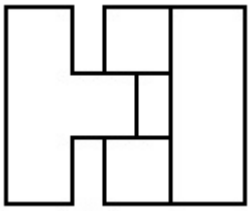
The 3D figure shows the view of an object. Identify the correct top view, amongst the answer figures.

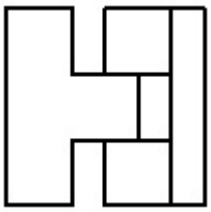


Options :

70819143097. 

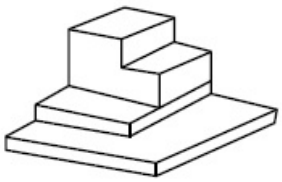
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70819143099. 

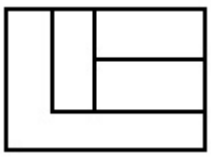
70819143100. 

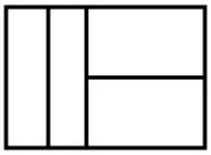
Question Number : 76 Question Id : 70819113077 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

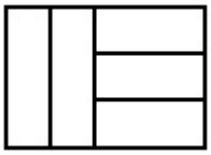
The 3D figure shows the view of an object. Identify the correct top view, amongst the answer figures.

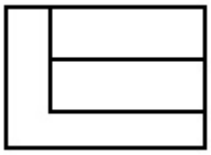


Options :

70819143101. 

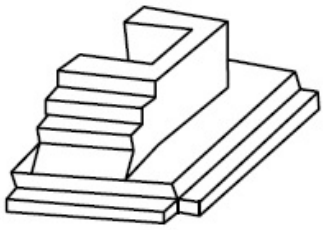
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70819143103. 

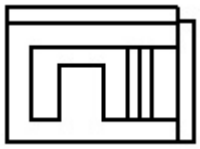
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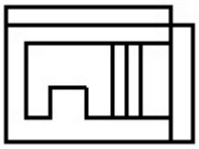
Question Number : 77 Question Id : 70819113078 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

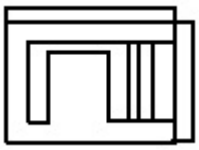
The 3D figure shows the view of an object. Identify the correct top view, amongst the answer figures.

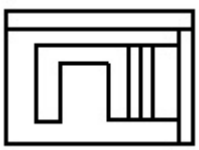


Options :

70819143105. 

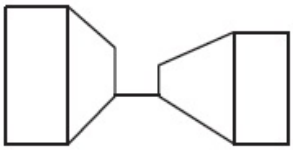
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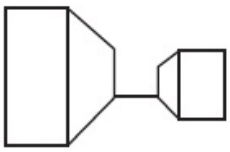
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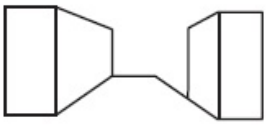
70819143108. 

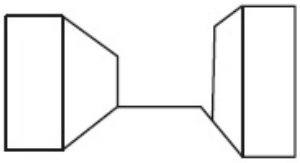
Question Number : 78 Question Id : 70819113079 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Identify the building compositions of having less visual tension amongst the following figures.

(A) 

(B) 

(C) 

(D) 

Options :

70819143109. (A) and (B)

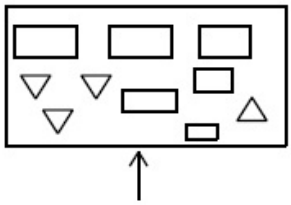
70819143110. (B) and (C)

70819143111. (C) and (D)

70819143112. (D) and (A)

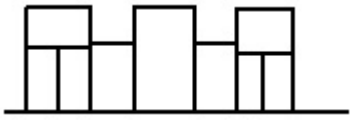
Question Number : 79 Question Id : 70819113080 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

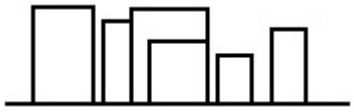
The problem figure shows the top view of an object. Identify the correct elevation amongst the answer figures looking in the direction of arrow.

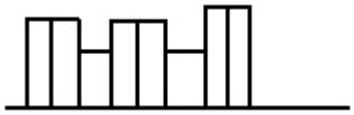


Options :

70819143113. 

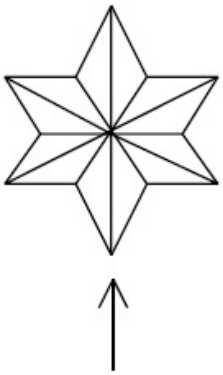
70819143114. 

70819143115. 

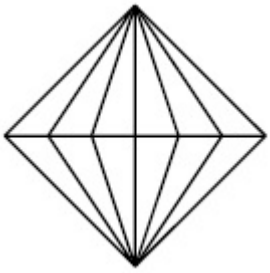
70819143116. 

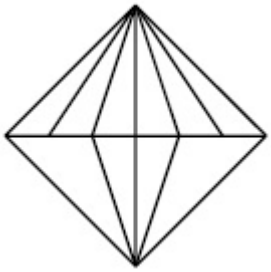
Question Number : 80 Question Id : 70819113081 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

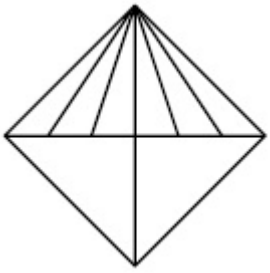
The problem figure shows the top view of an object. Identify the correct elevation amongst the answer figures looking in the direction of arrow.

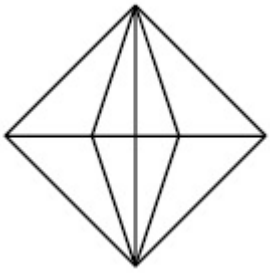


Options :

70819143117. 

70819143118. 

70819143119. 

70819143120. 

Planning

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

Section Marks : 100

Question Number : 81 Question Id : 70819113082 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Which of these industries did not exist in London before the first world war ?

Options :

70819143121. Automobile

70819143122. Clothing and Textile

70819143123. Printing

70819143124. Iron and Steel

Question Number : 82 Question Id : 70819113083 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

A carbon footprint is the amount of _____ released into the atmosphere.

Options :

70819143125. Nitrogen

70819143126. Greenhouse gas

70819143127. Ozone

70819143128. Suspended Particulate Matter (SPM)

Question Number : 83 Question Id : 70819113084 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

A. KodaiKanal
B. Kullu
C. Mount Abu
D. Panchgani
E. Pahalgam

Arrange the above hill stations in the correct sequence from south to north in India.
Choose the correct answer from the options given below :

Options :

70819143129. $E \rightarrow D \rightarrow B \rightarrow A \rightarrow C$

70819143130. $E \rightarrow B \rightarrow C \rightarrow D \rightarrow A$

70819143131. $C \rightarrow A \rightarrow B \rightarrow D \rightarrow E$

70819143132. $A \rightarrow D \rightarrow C \rightarrow B \rightarrow E$

Question Number : 84 Question Id : 70819113085 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Planning Commission in India has been replaced by :

Options :

70819143133. Mo HUA

70819143134. NITI Aayog

70819143135. NIUA

70819143136. PFI

Question Number : 85 Question Id : 70819113086 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

When was the special Economic Zone's Act enacted in India ?

Options :

70819143137. 2005

70819143138. 2007

70819143139. 2009

70819143140. 2011

Question Number : 86 Question Id : 70819113087 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

What is the full form of NHAI ? Choose the correct answer.

Options :

70819143141. National Horticulture Association of India.

70819143142. National Heritage Authority of India.

70819143143. National Hydroelectric Power Authority of India.

70819143144. National Highway Authority of India.

Question Number : 87 Question Id : 70819113088 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

How many Sustainable Development Goals were adopted by the United Nations ?

Options :

70819143145. 15

70819143146. 16

70819143147. 17

70819143148. 18

Question Number : 88 Question Id : 70819113089 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

In which year, the first industrial policy by Government of India was announced ?

Options :

70819143149. 1947

70819143150. 1948

70819143151. 1950

70819143152. 1949

Question Number : 89 Question Id : 70819113090 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Planning of Barcelona city in Spain is known for its :

Options :

70819143153. superblocks

70819143154. radial pattern

70819143155. high rise development

70819143156. waterbased transport

Question Number : 90 Question Id : 70819113091 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Which of these is not an industrial city ?

Options :

70819143157. Durgapur

70819143158. Vishakhapatnam

70819143159. Bhubaneshwar

70819143160. Bhilai

Question Number : 91 Question Id : 70819113092 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Which of these schemes / programmes by Government of India is linked to heritage cities ?

Options :

70819143161. AMRUT

70819143162. Make in India

70819143163. HRIDAY

70819143164. UDAY

Question Number : 92 Question Id : 70819113093 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Which one of the following south Indian states has the highest ground water utilization (in percent) of its total groundwater potential ?

Options :

70819143165. Tamil Nadu

70819143166. Karnataka

70819143167. Andhra Pradesh

70819143168. Kerala

Question Number : 93 Question Id : 70819113094 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Survey of India was established in :

Options :

70819143169. 1886

70819143170. 1876

70819143171. 1866

70819143172. 1896

Question Number : 94 Question Id : 70819113095 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

As per 73rd amendment act (73rd CAA) 1992 first time one third (1/3) reservation for women was provided in which of the following ?

Options :

70819143173. Lok Sabha

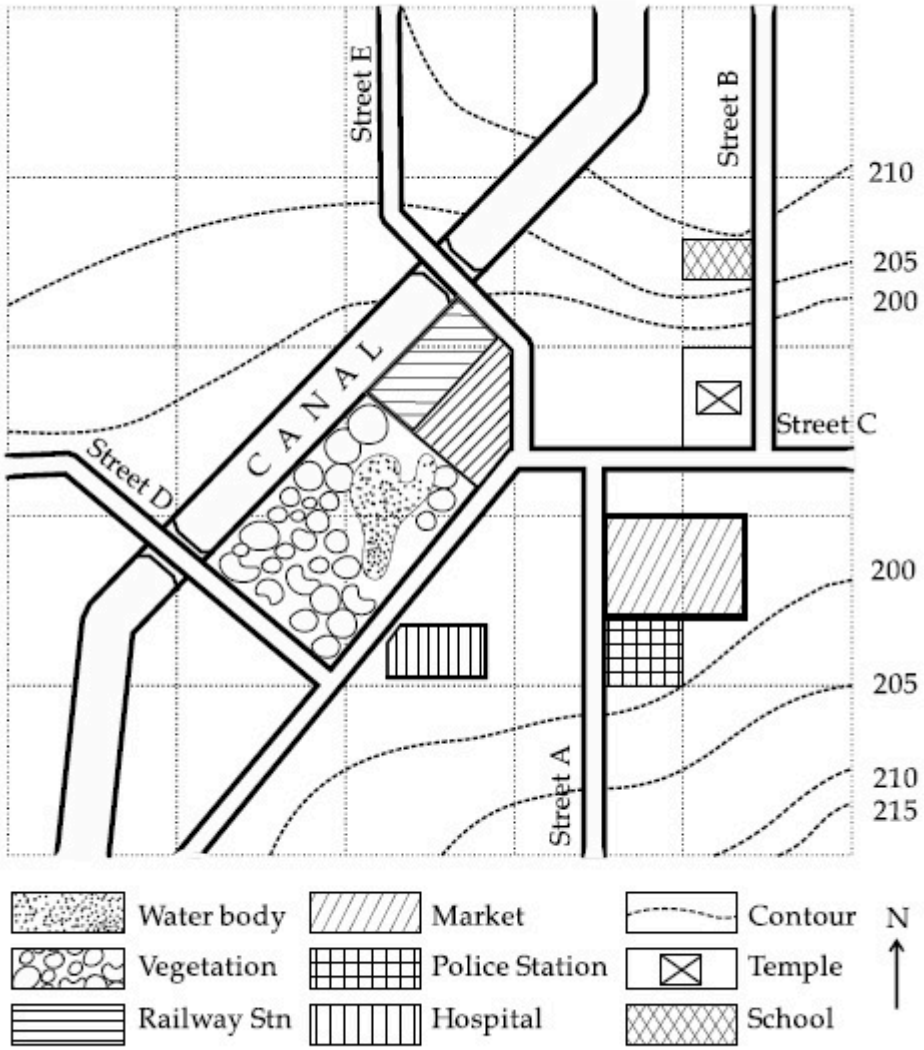
70819143174. State Legislative Assembly

70819143175. Cabinets

70819143176. Panchayati Raj bodies

Question Number : 95 Question Id : 70819113096 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Map Reading.



With reference to the diagram, choose the correct statement.

Options :

70819143177. Slope of land on which school is located is flatter than the slope of land on which hospital is located.

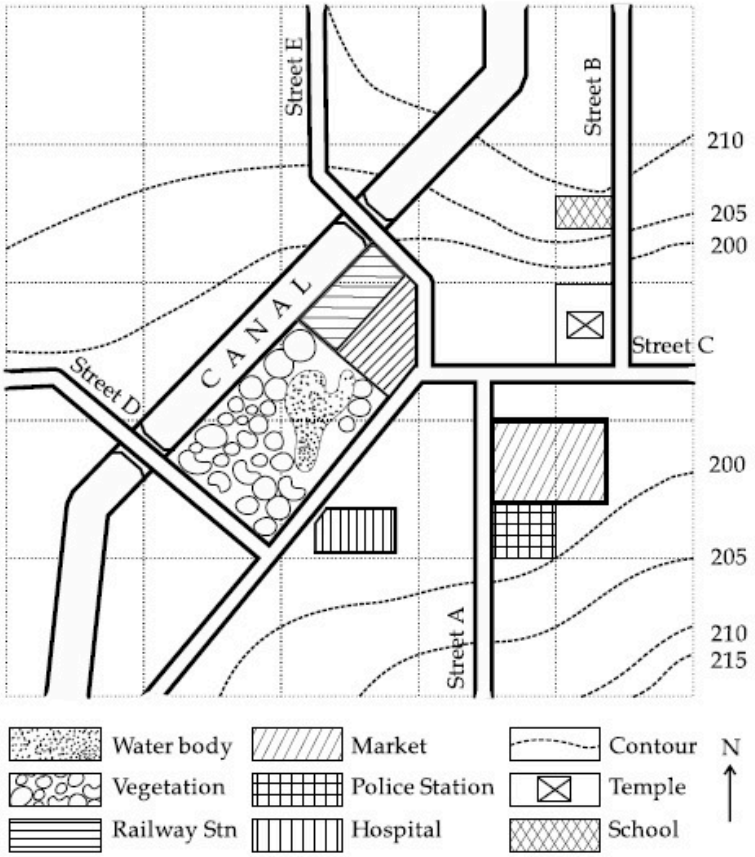
70819143178. Slope of land on which police station is located is steeper than the slope of land on which school is located.

70819143179. Slope of land on which school is located is steeper than the slope of land on which temple is located.

70819143180. Slope of land on which school is located is the same as the slope of land on which temple is located.

Question Number : 96 Question Id : 70819113097 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Map Reading.



In the given diagram, for a person to travel from railway station to temple, one will have to move in _____ direction.

Options :

70819143181. North

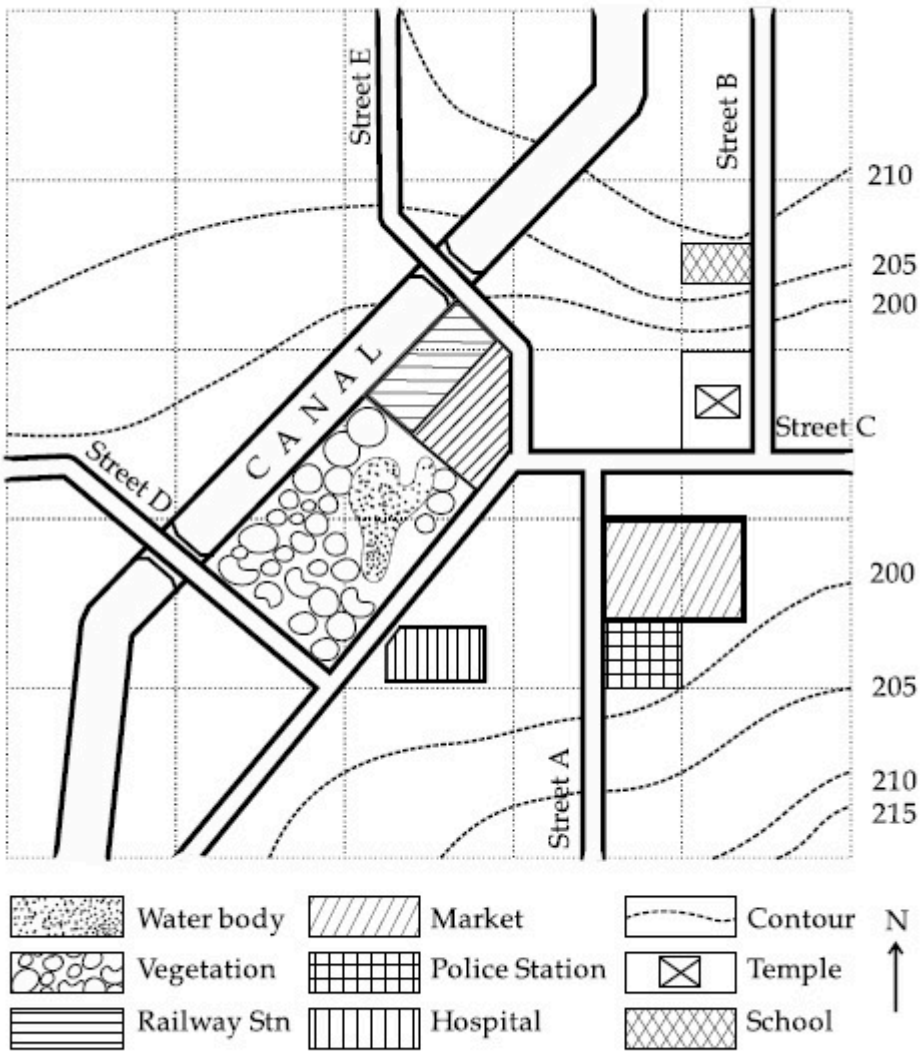
70819143182. North - East

70819143183. South - West

70819143184. East

Question Number : 97 Question Id : 70819113098 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Map Reading.



In the given diagram, water body is located at a level :

Options :

70819143185. 5 m higher than police station.

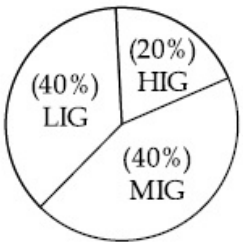
70819143186. 5 m higher than school.

70819143187. same level as police station.

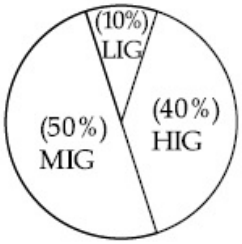
70819143188. same level as school.

Question Number : 98 Question Id : 70819113099 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

The following pie-charts show the distribution of students enrolled in higher secondary and in college education, with respect to the household income of their families.



Higher Secondary Education



College Education

The ratio between the number of students from LIG household category studying at higher secondary to those in college is :

Options :

70819143189. 4 : 1

70819143190. 1 : 5

70819143191. 6 : 1

70819143192. 1 : 4

Question Number : 99 Question Id : 70819113100 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

The surface area of earth is 510 million km^2. The land area is thirty percent of total surface. Urban land is three percent of total land surface. World population is 7.8 billion and fifty five percent is urban population. Find the closest correct answer.

Options :

70819143193. The density of population in urban area is 1000 persons/sq.km.

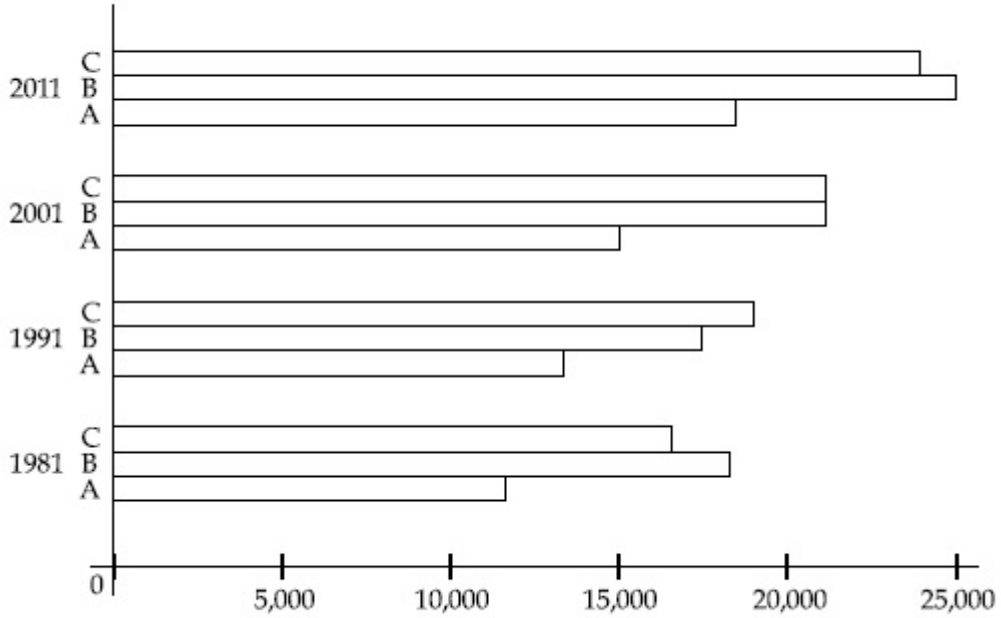
70819143194. The density of population in urban area is 849 persons/sq.km.

70819143195. The density of population in urban area is 4290 persons/sq.km.

70819143196. The density of population in urban area is 7800 persons/sq.km.

Question Number : 100 Question Id : 70819113101 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Population of city A, B and C from 1981–2011.



Choose the correct statement :

Options :

70819143197. City A shows the increase in population from 1981 to 2011 and city C does not show the increase likewise.

70819143198. City B shows a continuous decline in population from 1981–2011 whereas city A shows an increase.

70819143199. Population in city A is increasing in each decade from 1981 to 2001 whereas city B shows a decline from 1981 to 1991 and then it increases from 1991 to 2001.

70819143200. City C shows continuous decline in population in various decades whereas city B shows increase.

Question Number : 101 Question Id : 70819113102 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

In a survey, the speeds of 100 vehicles were observed. The following table gives the distribution of vehicle speed and the corresponding number of vehicles.

Vehicle Speed ($kmhr^{-1}$)	No. of Vehicles
20	6
25	20
28	24
29	28
33	15
38	4
40	2
45	1

The median speed of the vehicles is :

Options :

70819143201. $26\ kmhr^{-1}$

70819143202. $21.5\ kmhr^{-1}$

70819143203. $30\ kmhr^{-1}$

70819143204. $28.5\ kmhr^{-1}$

Question Number : 102 Question Id : 70819113103 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Hundreds of Shanty towns line the river banks, train tracks, and garbage dumps in the Filipino capital. Around a quarter of its 12 million are considered 'informal settlers'. Manila is starkly representative of a global problem. According to the United Nations, about a quarter of the World's urban population lives in slums.

Slum tourism takes outsiders through their most impoverished marginalized districts. Slum tourism sparks considerable debate around an uncomfortable moral dilemma. Many consider the practice little more than slack-jawed privileged people gawking at those less fortunate. Others argue they raise awareness and provide numerous examples of giving back to the local communities.

Which of the following best justify 'Slum Tourism' in the above paragraph ?

Options :

70819143205. As a charity by privileged people.

70819143206. As a way to reduce crime.

70819143207. As a way to sensitize travellers about poor living conditions in the society.

70819143208. As an adventure activity.

Question Number : 103 Question Id : 70819113104 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

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The nearest meaning of 'Gawking' in this paragraph would be :

Options :

70819143209. Learning

70819143210. Staring

70819143211. Peeping

70819143212. Gloating

Question Number : 104 Question Id : 70819113105 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Given below are two statements : one is labelled as **Assertion A** and the other is labelled as **Reason R.**

Assertion A : Over the last two decades collective attention span is decreasing.

Reason R : Quick availability and rapid access to large amount of information leads to loss of interest in one topic very quickly.

In the light of the above statements, choose the correct answer from the options given below :

Options :

70819143213. Both **A** and **R** are true and **R** is the correct explanation of **A**

70819143214. Both **A** and **R** are true but **R** is NOT the correct explanation of **A**

70819143215. **A** is true but **R** is false

70819143216. **A** is false but **R** is true

Question Number : 105 Question Id : 70819113106 Question Type : MCQ Correct Marks : 4 Wrong Marks : 1

Given below are two statements : one is labelled as **Assertion A** and the other is labelled as **Reason R :**

Assertion A : In past two decades, rate of divorce has increased in India.

Reason R : Increasing number of married couples do not want to have children.

In the light of the above statements, choose the correct answer from the options given below :

Options :

70819143217. Both **A** and **R** are true and **R** is the correct explanation of **A**

70819143218. Both **A** and **R** are true but **R** is NOT the correct explanation of **A**

70819143219. **A** is true but **R** is false

70819143220. **A** is false but **R** is true