

Question ID	1736
Question Type	MCQ
Question	If $\begin{bmatrix} 1 & x \\ 0 & 1 \end{bmatrix} + 2 \begin{bmatrix} 3 & 4 \\ 5 & y \end{bmatrix} = \begin{bmatrix} 7 & 0 \\ 10 & 5 \end{bmatrix}$ Then $x + y$ is 1. 10 2. 6 3. -6 4. -10
Options	
A	1
B	2
C	3
D	4

Question ID	1776
Question Type	MCQ
Question	If A is a square matrix of order 3 and $A = 3$, then which of the following statements is/are TRUE? A. $\text{adj}A = 9$ B. $\text{adj}(\text{adj}A) = 27$ C. $3A = 81$ D. $2A^2 = 72$ Choose the correct answer from the options given below: 1. A, C and D only 2. A, B and C only 3. B, C and D only 4. A, B and D only
Options	
A	1
B	2
C	3
D	4

Question ID	1778
Question Type	MCQ
Question	If $\Delta = \begin{vmatrix} \frac{1}{a} & a^2 & bc \\ \frac{1}{b} & b^2 & ca \\ \frac{1}{c} & c^2 & ab \end{vmatrix}$, then 4Δ is equal to: 1. $4abc$ 2. $a^2b^2c^2$ 3. abc 4. 0

Options	
A	1
B	2
C	3
D	4

Question ID	1780
Question Type	MCQ
Question	If (u,v) is an interval in which the function $f(x)=2x^3+9x^2+12x+20$ is decreasing, then $u-2v$ is 0 -4 -3 4
Options	
A	1
B	2
C	3
D	4

Question ID	1781
Question Type	MCQ
Question	If $e^y(x+1)=1$, then $\frac{d^2y}{dx^2}-\left(\frac{dy}{dx}\right)^2$ is equal to: 0 1 -1 2
Options	
A	1
B	2
C	3
D	4

Question ID

1782

Question Type

MCQ

Question

If C is an arbitrary constant, then

Match **LIST-I** with **LIST-II**

LIST-I		LIST-II	
A.	$\int \frac{1}{x^2} dx$	I.	$\ln x + C$
B.	$\int \frac{1}{x} dx$	II.	$e^x + C$
C.	$\int e^x dx$	III.	$-e^{-x} + C$
D.	$\int e^{-x} dx$	IV.	$-\frac{1}{x} + C$

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

1. A-III B-II C-IV D-I

1. A-III, B-II, C-IV, D-I
2. A-IV, B-I, C-II, D-III
3. A-IV, B-II, C-I, D-III
4. A-I, B-II, C-III, D-IV

Options	
A	1
B	2
C	3
D	4

Question ID	1784
Question Type	MCQ

Question	$\int_0^1 (3x^2 + 2x + K) dx = 0$, then the value of $2K + 1$ is : (where K is any constant)
	1. 3
	2. -5
	3. -2
	4. -3
Options	
A	1
B	2
C	3
D	4

Question ID	1787
Question Type	MCQ

Question	If α and β respectively are the order and degree of the differential equation
	$\frac{d^2 y}{dx^2} + 5x \left(\frac{dy}{dx} \right)^2 - 6y = \log x$, then
	$\alpha - \beta$ is equal to:
	1. 0
	2. 4
Options	3. 1
	4. 3
A	1
B	2
C	3
D	4

Question ID	1789
Question Type	MCQ

Question	A basket contains 20 apples and 10 oranges out of which 5 apples and 3 oranges are defective. If a person takes out 2 fruits at random then what is the probability that one is apple and one is defective orange?
	1. $\frac{2}{29}$
	2. $\frac{4}{29}$
	3. $\frac{6}{29}$
	4. $\frac{1}{29}$

Options	
A	1
B	2
C	3
D	4

Question ID	1790
Question Type	MCQ

Question	The maximum value of $z = x + 2y$ subjected to the constraints $2x + y \leq 10, 5x + y \leq 15; x, y \geq 0$ is
	1. 10
	2. 15
	3. 20
	4. 25

Options	
A	1
B	2
C	3
D	4

Question ID

Question Type

1968

MCQ

Question

Options

A

B

C

D

The relation R on the set $A = \{x \in Z \mid 0 \leq x \leq 12, \text{ where } Z \text{ is set of integers}\}$ given by $R = \{(a,b) \mid |a - b| \text{ is multiple of } 4\}$ is an equivalence relation. The set of all elements related to 1 is

1. $\{0, 4, 8\}$

2. $\{0, 4, 8, 12\}$

3. $\{1, 5, 9\}$

4. $\{1, 6, 12\}$

1

2

3

4

Question ID

Question Type

1969

MCQ

Question

Options

A

B

C

D

Consider a set A of 50 students of Class X in a school. Let $f:A \rightarrow N$ be a function defined by

$$f(x) = \text{Roll number of student } x, \text{ (where } N \text{ is the set of natural numbers). Then } f(x) \text{ is}$$

1. One-one and onto

2. One-one but not onto

3. Onto but not one-one

4. Neither one-one nor onto

1

2

3

4

Question ID

Question Type

1970

MCQ

Question

Match LIST-I with LIST-II

LIST-I Matrix A		LIST-II adj A	
A.	$\begin{bmatrix} 4 & 2 \\ 7 & 8 \end{bmatrix}$	I.	10
B.	$\begin{bmatrix} 3 & 2 \\ -1 & 2 \end{bmatrix}$	II.	11
C.	$\begin{bmatrix} 5 & 3 \\ 3 & 4 \end{bmatrix}$	III.	8
D.	$\begin{bmatrix} 7 & 8 \\ 4 & 6 \end{bmatrix}$	IV.	18

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

1. A-III, B-IV, C-I, D-II
2. A-II, B-III, C-IV, D-I
3. A-III, B-IV, C-II, D-I
4. A-IV, B-III, C-II, D-I

Options	
A	1
B	2
C	3
D	4

Question ID	1971
Question Type	MCQ

Question

Options	
A	1
B	2
C	3
D	4

Question ID	1972
Question Type	MCQ

Question		
Options		
A		
B		
C		

D	4
Question ID	1973
Question Type	MCQ
Question	For what value of k, the following system of linear equations: $x + y + z = 1,$ $x + 2y + 3z = 2,$ $x + y + kz = 2,$ does not have a solution?
Options	
A	1
B	2
C	3
D	4

Question ID	1974
Question Type	MCQ
Question	The derivative of $\cos^{-1}\left(2x^2-1\right)$ with respect to $\cos^{-1}x$ is -
Options	
A	1
B	2
C	3
D	4

Question ID	1975
Question Type	MCQ
Question	The minimum value of the function $\sin x + \cos x$ is -
Options	
A	1
B	2
C	3
D	4

Question ID	1976
Question Type	MCQ
Question	For the function $f(x) = e^x$, $\forall x \in R$, which of the following statement(s) is/are TRUE? A. $f'(x) = f(x)$ B. $f''(x) = f(x)$ C. The function is increasing for all real x D. The function has a point of inflection at $x = 0$ Choose the correct answer from the options given below: 1. A, B and C only 2. A and D only 3. B and D only 4. A, B, C and D
Options	
A	1
B	2
C	3
D	4

Question ID	1977
Question Type	MCQ
Question	$\int \left(3x^2 \tan \frac{1}{x} - x \sec^2 \frac{1}{x} \right) dx$ is equal to: 1. $x^3 \tan \left(\frac{1}{x} \right) + C$: where C is an arbitrary constant 2. $x^3 \tan \left(\frac{1}{x^2} \right) + C$: where C is an arbitrary constant 3. $x^2 \tan \left(\frac{1}{x} \right) + C$: where C is an arbitrary constant 4. $x^4 \tan \left(\frac{1}{x} \right) + C$: where C is an arbitrary constant
Options	
A	1
B	2
C	3
D	4

Question ID	1978
Question Type	MCQ
Question	If $\int_0^a f(x) dx = 10$ and $f(a-x) = f(x)$ then $\int_0^a x f(x) dx$ equals to 1. $5a$ 2. $10a$ 3. a 4. $15a$
Options	
A	1

B	2
C	3
D	4

Question ID	1979
Question Type	MCQ
Question	The area (in sq. units) of the region bounded by the lines $3y = -2x + 6$, $y = 0$, $x = 1$ and $x = 2$ is 0 1 2 5
Options	
A	1
B	2
C	3
D	4

Question ID	1980
Question Type	MCQ
Question	Let $y(x)$ be a solution of the differential equation $\frac{dy}{dx} = \cos(x + y).$ Then $y(x)$ is: $2 \tan^{-1}(x + c) + x$: where c is an arbitrary constant $\tan^{-1}(x + c)$: where c is an arbitrary constant $2 \tan^{-1}(x - c)$: where c is an arbitrary constant $2 \tan^{-1}(x + c) - x$: where c is an arbitrary constant
Options	
A	1
B	2
C	3
D	4

Question ID	1981
Question Type	MCQ
Question	If $\vec{p}, \vec{q}, \vec{r}$ are unit vectors such that $\vec{p} + \vec{q} + \vec{r} = \vec{0}$. Then the value of $\vec{p} \cdot \vec{q} + \vec{q} \cdot \vec{r} + \vec{r} \cdot \vec{p}$ is: $\frac{1}{2}$ $\frac{3}{2}$ $-\frac{3}{2}$ $-\frac{1}{2}$
Options	
A	1

B	2
C	3
D	4

Question ID	1982
Question Type	MCQ
Question	Which of the following statements is/are correct? A. Scalar product of two vectors is scalar quantity. B. Vector product of two vectors is perpendicular to both vectors. C. $\vec{a} \cdot (\vec{b} \times \vec{c})$ is a scalar. D. $\vec{a} \times \vec{b} = \vec{a} \vec{b} \cos \theta$ Choose the correct answer from the options given below: 1. A, B and C only 2. A, B and D only 3. B, C and D only 4. A, B, C and D only
Options	
A	1
B	2
C	3
D	4

Question ID	1983
Question Type	MCQ
Question	The shortest distance between the lines $\frac{x-1}{2} = \frac{y-2}{3} = \frac{z-3}{6} \text{ and }$ $\frac{x-2}{4} = \frac{y+1}{6} = \frac{z+1}{12} \text{ is}$ 1. $\frac{1}{2}\sqrt{313}$ 2. $\frac{1}{9}\sqrt{313}$ 3. $\frac{1}{5}\sqrt{313}$ 4. $\frac{1}{7}\sqrt{313}$
Options	
A	1
B	2
C	3
D	4

Question ID	1984
Question Type	MCQ
Question	The objective function $z = 4x + 3y$ can be maximised subjected to the constraints $3x + 4y \leq 24, 8x + 6y \leq 48, x \leq 5, y \leq 6, x, y \geq 0$ 1. at only one point 2. at two points only 3. at an infinite number of points 4. at origin only

Options	
A	1
B	2
C	3
D	4

Question ID	1985
Question Type	MCQ
Question	A and B appear for an interview for two vacancies in a company. The probability of A's selection is $\frac{1}{3}$ and B's selection is $\frac{1}{6}$. Then the probability that only one of them is selected, is: $\frac{7}{18}$ $\frac{3}{10}$ $\frac{2}{3}$ $\frac{1}{2}$
Options	
A	1
B	2
C	3
D	4