

Question ID	261802
Question Type	MCQ
Question	If A and B are the square matrices of order n and k is any real number, then which of the following statements are TRUE ? (A) $A = A^T$ (B) $AB = A B$ (C) $A + B = A + B$ (D) $kA = k^n A$ Choose the correct answer from the options given below: 1. (A) and (B) only 2. (A), (B) and (D) only 3. (B), (C) and (D) only 4. (A), (B), (C) and (D)
Options	
A	1
B	2
C	3
D	4

Question ID	261803
Question Type	MCQ
Question	Let A be a singular square matrix of order n, then $A(\text{adj}A)$ is equal to: 1. I (Identity matrix) 2. A^{-1} 3. A 4. O (null matrix)
Options	
A	1
B	2
C	3
D	4

Question ID	261805
Question Type	MCQ
Question	If $A = \begin{bmatrix} 2 & 0 & 0 \\ 0 & 2 & 0 \\ 0 & 0 & 2 \end{bmatrix}$, then $\text{adj } A$ is equal 1. 20 2. 46 3. 68 4. 64
Options	
A	1
B	2
C	3
D	4

Question ID	261807
Question Type	MCQ
Question	The minimum value of the function $f(x) = x^3 - 6x^2 + 9x - 8$ is: 1. -3 2. 0 3. -4 4. -8
Options	
A	1
B	2
C	3
D	4

Question ID	261811										
Question Type	MCQ										
Question	Match List-I with List-II <table> <tr> <th>List-I</th><th>List-II</th></tr> <tr> <td>(A) $y = x^2, \forall x \in R$</td><td>(I) increasing in $(0, \infty)$</td></tr> <tr> <td>(B) $y = -x^2, \forall x \in R$</td><td>(II) increasing in $(-\infty, 0)$</td></tr> <tr> <td>(C) $y = x^3, \forall x \in R$</td><td>(III) increasing in $(-\infty, \infty)$</td></tr> <tr> <td>(D) $y = -x, \forall x \in R$</td><td>(IV) decreasing in $(-\infty, \infty)$</td></tr> </table> Choose the correct answer from the options given below: 1. (A) - (II), (B) - (I), (C) - (III), (D) - (IV) 2. (A) - (IV), (B) - (III), (C) - (II), (D) - (I) 3. (A) - (IV), (B) - (I), (C) - (III), (D) - (II) 4. (A) - (I), (B) - (II), (C) - (III), (D) - (IV)	List-I	List-II	(A) $y = x^2, \forall x \in R$	(I) increasing in $(0, \infty)$	(B) $y = -x^2, \forall x \in R$	(II) increasing in $(-\infty, 0)$	(C) $y = x^3, \forall x \in R$	(III) increasing in $(-\infty, \infty)$	(D) $y = -x, \forall x \in R$	(IV) decreasing in $(-\infty, \infty)$
List-I	List-II										
(A) $y = x^2, \forall x \in R$	(I) increasing in $(0, \infty)$										
(B) $y = -x^2, \forall x \in R$	(II) increasing in $(-\infty, 0)$										
(C) $y = x^3, \forall x \in R$	(III) increasing in $(-\infty, \infty)$										
(D) $y = -x, \forall x \in R$	(IV) decreasing in $(-\infty, \infty)$										
Options											
A	1										
B	2										
C	3										
D	4										

Question ID	261813
Question Type	MCQ
Question	The value of integral $\int \frac{1}{1 + e^{-x}} dx$ is (where c is an arbitrary constant) 1. $\log 1 + e^{-x} + c$ 2. $\log 1 - e^x + c$ 3. $\log 1 + e^x + c$ 4. $\log 1 - e^{-x} + c$
Options	
A	1
B	2
C	3
D	4

Question ID	261817
-------------	--------

Question Type	MCQ
Question	$\int_2^3 x^3 dx$ is equal to
	1. $\frac{x^4}{4}$
	2. $\frac{81}{4}$
	3. $\frac{16}{4}$
	4. $\frac{65}{4}$
Options	
A	1
B	2
C	3
D	4

Question ID	261819
Question Type	MCQ
Question	The sum of the order and degree of differential equation $\frac{d^2y}{dx^2} = \left(\frac{dy}{dx}\right)^{\frac{2}{3}}$ is:
	1. 8
	2. 4
	3. 3
	4. 5
Options	
A	1
B	2
C	3
D	4

Question ID	261822
Question Type	MCQ
Question	A die is thrown twice. The sum of the numbers is observed. Then the probability that the sum will be 6 is:
	1. 5/36
	2. 1/36
	3. 3/5
	4. 1
Options	
A	1
B	2
C	3
D	4

Question ID	261824
Question Type	MCQ
Question	The maximum value of $z = 2x + y$ subjected to the constraints: $x + y \leq 4, \quad x \leq 2, \quad x + y \geq 1, \quad x \geq 0, y \geq 0.$ is:
	1. 1

Question	1. 1
	2. 2
	3. 6
	4. 4
Options	
A	1
B	2
C	3
D	4

Question ID	261800
Question Type	MCQ
Question	Let N be the set of natural numbers and function $f:N \rightarrow N$ defined by $f(x) = x^2$, then f is 1. One - one but not onto 2. One - one and onto 3. Onto but not one - one 4. neither one - one nor onto
Options	
A	1
B	2
C	3
D	4

Question ID	261804
Question Type	MCQ
Question	$\forall x \in [-1,1]$, $\sin(\sin^{-1} x + \cos^{-1} x)$ is equal to : 1. 0 2. -1 3. 1 4. $\sqrt{2}$
Options	
A	1
B	2
C	3
D	4

Question ID	261810
Question Type	MCQ
Question	If $A = \begin{bmatrix} 2 & 3 \\ 1 & -2 \end{bmatrix}$ and $B = \begin{bmatrix} 3 & 1 \\ -2 & 2 \end{bmatrix}$, then AB is equal to : 1. $\begin{bmatrix} 6 & 3 \\ -2 & -4 \end{bmatrix}$ 2. $\begin{bmatrix} 0 & 8 \\ 7 & -3 \end{bmatrix}$ 3. $\begin{bmatrix} 7 & 11 \\ -2 & 10 \end{bmatrix}$ 4. $\begin{bmatrix} 5 & 3 \\ -1 & 0 \end{bmatrix}$
Options	
A	1
B	2
C	3
D	4

Question ID	261815
Question Type	MCQ
Question	If $\begin{vmatrix} x & 1 & 1 \\ 1 & x & 1 \\ 1 & 1 & x \end{vmatrix} = 0$, then the possible values of x are : 1, -2 2, -1 1, 2 -1, -2
Options	
A	1
B	2
C	3
D	4

Question ID	261818
Question Type	MCQ
Question	If A is a non-singular matrix of order 3 , then $\text{adj}(\text{adj}A)$ is equal to $A ^2$ $A ^4$ $A ^3$ A^{-1}
Options	
A	1
B	2
C	3
D	4

Question ID	261826
Question Type	MCQ
Question	Let A and B be two matrices of order $m \times m$ and (T) represents the transpose of a matrix, then which of the following are correct? (A) $(AB)^T = A^T B^T$ (B) $(KA)^T = K(A^T)$, K is a scalar. (C) $(A + B)^T = (B + A)^T$ (D) $(A + B)^T = A^T + B^T$ Choose the correct answer from the options given below: (A), (B) and (C) only (B) and (C) only (A), (C) and (D) only (B), (C) and (D) only
Options	
A	1
B	2
C	3
D	4

Question ID	261849
Question Type	MCQ
	Match List-I with List-II List-I List-II

Question	List-I	List-II
	(A) If $x = t^2$, $y = t^4$, Then $\frac{dy}{dx} =$	(I) 1
	(B) If $x - y = 1$ then $\frac{d^2y}{dx^2} + \frac{dy}{dx} =$	(II) $2x$
	(C) If $f(x) = \begin{cases} \lambda : x \leq 1 \\ 3 : x > 1 \end{cases}$ is continuous at $x = 1$ then λ is	(III) 0
	(D) If $f(x) = \begin{cases} x + a, & x \geq 1 \\ x - a, & x < 1 \end{cases}$ is continuous at $x = 1$ then, a is	(IV) 3

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

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

Options	
A	1
B	2
C	3
D	4

Question ID	261852
Question Type	MCQ

Question	Let $f(x) = \begin{cases} 5 & : & x \leq 2 \\ ax + b & : & 2 < x < 10 \\ 21 & : & x \geq 10 \end{cases}$ is a continuous function on $\mathbb{R}$. Then $a + b$ is equal to :
	1. 3
	2. 5
	3. 21
	4. 8
Options	
A	1
B	2
C	3
D	4

Question ID	261858
Question Type	MCQ

Question	The rate of change of the area of a circle with respect to its radius r , at $r = 7\text{ cm}$, is
	1. $49\pi\text{ cm}^2/\text{cm}$
	2. $7\pi\text{ cm}^2/\text{cm}$
	3. $14\pi\text{ cm}^2/\text{cm}$
	4. $21\pi\text{ cm}^2/\text{cm}$
Options	
A	1
B	2
C	3
D	4

Question ID	261863
-------------	--------

Question Type	MCQ
Question	Value of the integral $\int \frac{1}{4+9x^2} dx$ is : $\frac{1}{6} \cot^{-1} \left(\frac{3x}{2} \right) + c$; where c is constant of integration $\frac{1}{6} \tan^{-1} \left(\frac{3x}{2} \right) + c$; where c is constant of integration $\frac{3}{2} \tan^{-1} \left(\frac{3x}{2} \right) + c$; where c is constant of integration $\frac{3}{2} \cot^{-1} \left(\frac{3x}{2} \right) + c$; where c is constant of integration
Options	
A	1
B	2
C	3
D	4

Question ID	261865
Question Type	MCQ
Question	If $\int_0^1 (3x^2 + 2x + \lambda) dx = 0$, Then $\lambda + 2$ is equal to : 0 -2 2 4
Options	
A	1
B	2
C	3
D	4

Question ID	261867
Question Type	MCQ
Question	The area (in square units) of the region bounded between the lines $x = 0$, $y = 0$ and $x + y = 1$, is a . If $2a + b = 0$, then b is equal to 1 -1 0 -2
Options	
A	1
B	2
C	3
D	4

Question ID	261870
Question Type	MCQ
Question	The differential equation $x dx + dy = 0$ has the solution $y = y(x)$ such that $y(0) = 2$, then the value of $y(2)$ is : 0 1 2 3
Options	
A	1

B	2
C	3
D	4

Question ID	261871
Question Type	MCQ
Question	If $\vec{a}$ and $\vec{b}$ are two non-zero vectors such that $\left \vec{a}.\vec{b} \right = \left \vec{a} \times \vec{b} \right$, then angle between them is : 1. π 2. 0 3. $\frac{\pi}{4}$ 4. $\frac{\pi}{2}$
Options	
A	1
B	2
C	3
D	4

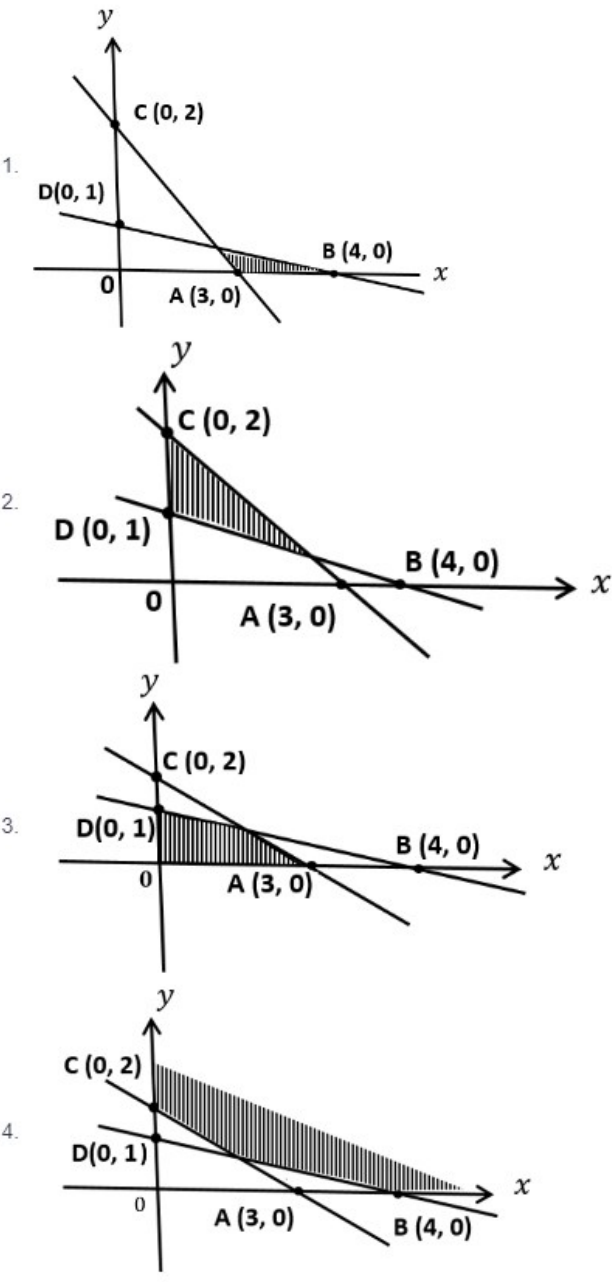
Question ID	261874
Question Type	MCQ
Question	Let $\vec{a}$ and $\vec{b}$ be two vectors, then $\vec{a} \times \vec{b} = \vec{0}$, if (A) $\vec{a} = \vec{0}$ (B) $\vec{b} = \vec{0}$ (C) $\vec{a}$ and $\vec{b}$ are parallel vectors. (D) $\vec{a}$ and $\vec{b}$ are perpendicular vectors. Choose the correct answer from the options given below: 1. (A), (B) and (D) only 2. (B), (C) and (D) only 3. (A) and (C) only 4. (A), (B) and (C) only
Options	
A	1
B	2
C	3
D	4

Question ID	261879
Question Type	MCQ
Question	A cartesian equation of a line is $\frac{x-3}{3} = \frac{y+2}{-2} = \frac{z+2}{6}$ and the direction cosines of a line parallel to the given line are l, m and n respectively. Then $7(l+m+n)$ is equal to: 1. 7 2. 1 3. 0 4. 49
Options	
A	1
B	2
C	3

Question ID 261892
Question Type MCQ

Question

The graph of the solution set (shaded region) of the system of inequations $2x + 3y \geq 6$, $x + 4y \geq 4$, $x \geq 0, y \geq 0$, is:



- Options
- A 1
 - B 2
 - C 3
 - D 4

Question ID 261888
Question Type MCQ

Match List-I with List-II

List-I	List-II
(A) $P(A \cup B) = P(A) + P(B) - P(A \cap B)$	(I) A and B are independent event
(B) $A \cap B = \phi$	(II) Multiplication rule of probability.

Question	(C) $P(A \cap B) = P(A B) P(B)$	(III) A and B are mutually exclusive events
	(D) $P(A \cap B) = P(A) P(B)$	(IV) Addition rule of probability.

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

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

Options	
A	1
B	2
C	3
D	4