

Question ID	11004
Question Type	MCQ
Question	If $\begin{bmatrix} a-b & 2a+c \\ 2a-b & 3c+d \end{bmatrix} = \begin{bmatrix} -1 & 5 \\ 0 & 13 \end{bmatrix}$, then $a+b+c+d$ is:
Options	
A	1
B	2
C	3
D	4

Question ID	11005
Question Type	MCQ
Question	If n be any natural number such that $\begin{vmatrix} n & 2 \\ 18 & n \end{vmatrix} = \begin{vmatrix} 6 & 2 \\ 18 & 6 \end{vmatrix}$, then n is equal to
Options	
A	1
B	2
C	3
D	4

Question ID	11006
Question Type	MCQ
Question	If $A = \begin{bmatrix} 2 & 3 \\ -3 & 2 \end{bmatrix}$, then A^{-1} is
Options	
A	1

B	2
C	3
D	4

Question ID	11007
Question Type	MCQ
Question	If $y = \log(\log(\log x))$, then $\frac{dy}{dx}$ is : $\frac{1}{x}$ $\frac{1}{x(\log x)(\log(\log x))}$ $\frac{x}{(\log(\log x))}$ $\frac{x(\log x)}{\log(\log x)}$
Options	
A	1
B	2
C	3
D	4

Question ID	11008
Question Type	MCQ
Question	The profit function of a company is given by $p(x) = 112 - 56x - 14x^2$ The maximum profit that company can make 112 168 0 42
Options	
A	1
B	2
C	3
D	4

Question ID	11009
Question Type	MCQ
Question	The value of $\int e^x \frac{x}{(x+1)^2} dx$ is: (where C is an arbitrary constant) $\frac{e^x}{(x+1)^2} + C$ $\frac{2e^x}{(x+1)} + C$ $\frac{2e^x}{(x+1)^2} + C$ e^x

	$\frac{e}{x+1} + c$
Options	
A	1
B	2
C	3
D	4

Question ID	11010
Question Type	MCQ
Question	Let A be the area bounded by the curve $y = x^2$, x- axis and the line $x = 0$ and $x = 1$. Which of the following statements is/are correct? A. $A = \int_0^1 x^2 \, dx$ B. $A = \frac{1}{3}$ C. Area lies above the x – axis. D. The integrand is continuous on $[0, 1]$ Choose the correct answer from the options given below: 1. A, B and C only 2. B, C and D only 3. A, B, C and D 4. A and D only
Options	
A	1
B	2
C	3
D	4

Question ID	11011
Question Type	MCQ
Question	The point at which the maximum value of $2x + y$, subject to the constraints $x + 3y \leq 60$, $x, y \geq 0$ is obtained, is 1. (0, 60) 2. (20, 60) 3. (0, 20) 4. (60, 0)
Options	
A	1
B	2
C	3
D	4

Question ID

11012

Question Type

MCQ

Question

If A and B are two events such that $P(A) = 0.5$, $P(B) = 0.6$ and $P(A \cup B) = 0.8$, then

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

LIST-I		LIST-II	
A.	$P(A \cap B)$	I.	0.3
B.	$P(A) \cdot P(B) + 1$	II.	0.7
C.	$1 - P(B) \cdot P(A)$	III.	1.1
D.	$P(A \cup B) + P(A \cap B)$	IV.	1.3

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

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

Options	
A	1
B	2
C	3
D	4

Question ID	11013
Question Type	MCQ

Question	The degree of the differential equation
	$\sqrt{\frac{dy}{dx}} = 1 + \frac{dy}{dx} + \frac{\left(\frac{dy}{dx}\right)^2}{2!} + \frac{\left(\frac{dy}{dx}\right)^3}{3!} + \dots$ is
	1. Does not exist
	2. 1
	3. 2
	4. ∞

Options	
A	1
B	2
C	3
D	4

Question ID	11014
Question Type	MCQ
Question	The function $f : R \rightarrow R$ given by $f(x) = 7x$, then which of the following statements is/are TRUE? A. function is one-one B. function is many-one C. function is onto D. function is into Choose the correct answer from the options given below: 1. A and D only 2. B and C only 3. A and C only 4. B and D only
Options	
A	1
B	2
C	3
D	4

Question ID	11015
Question Type	MCQ
Question	Let a be any real number. Then the value of $\text{Cot}(\text{Cot}^{-1}a + \tan^{-1}a)$ is: 1. $2a$ 2. a 3. 0 4. $\frac{\pi}{2}$
Options	
A	1
B	2
C	3
D	4

Question ID	11016
Question Type	MCQ
Question	If $A = \begin{bmatrix} 3 & 5 \\ 2 & 7 \end{bmatrix}$, $B = \begin{bmatrix} 1 & 3 \\ 2 & 9 \end{bmatrix}$, then which of the following statements is/are correct? A. $2A + 3B = \begin{bmatrix} 9 & 19 \\ 10 & 41 \end{bmatrix}$ B. $2A = 44$ C. $AB = 33$ D. $\text{adj } B = 9$ Choose the correct answer from the options given below: 1. A, B and C only 2. A, C and D only

3. B and C only

4. B, C and D only

Options

A	1
B	2
C	3
D	4

Question ID 11017

Question Type MCQ

If $A = \begin{bmatrix} 1 \\ 2 \\ -3 \end{bmatrix}$, $B = \begin{bmatrix} 2 & 3 & -1 \end{bmatrix}$, then order of matrix AB is -

- Question
- 1. 3×1
 - 2. 1×3
 - 3. 1×1
 - 4. 3×3

Options

A	1
B	2
C	3
D	4

Question ID 11018

Question Type MCQ

Let A be 3×3 matrix such that $|A| = 4$, then $|2A^{-1}A^T|$ equals to:

- Question
- 1. 1
 - 2. 8
 - 3. $\frac{1}{4}$
 - 4. $\frac{1}{16}$

Options

A	1
B	2
C	3
D	4

Question ID 11019

Question Type MCQ

Let A be a square matrix, then which of the following is correct?

- Question
- 1. $A + A^T$ is symmetric matrix
 - 2. $A + A^T$ is skew-symmetric matrix
 - 3. AA^T is skew-symmetric matrix
 - 4. $A - A^T$ is symmetric matrix

Options

A	1
B	2
C	3
D	4

Question ID 11020

Question Type MCQ

The function $f(x) = \begin{cases} ax+5, & \text{if } x \leq 2 \\ x-1, & \text{if } x > 2 \end{cases}$

is continuous at $x = 2$. Then the value of $a - 1$ is:

1. -2
2. -3
3. 3
4. 2

Options

A	1
B	2
C	3
D	4

Question ID 11021
Question Type MCQ

Let $y = x^x, x > 0$ then $\frac{dy}{dx}$ is:

1. $x^x(1 - \log x)$
2. $x^{-x}(1 + \log x)$
3. $x^x e^x$
4. $x^x(1 + \log x)$

Options

A	1
B	2
C	3
D	4

Question ID 11022
Question Type MCQ

The values of k for which $f(x) = kx^3 - 9kx^2 + 9x + 3$ is increasing on $\mathbb{R}$, is

1. $k = 3$
2. $0 < k < \frac{1}{3}$
3. $k < 0$
4. $k > \frac{1}{3}$

Options

A	1
B	2
C	3
D	4

Question ID 11023
Question Type MCQ

The value of $\int \frac{x}{(1-x^4)^{\frac{3}{2}}} dx$ is

1. $\frac{1}{2} \frac{x^2}{\sqrt{1-x^4}} + C$: where C is an arbitrary constant

Question	$2\sqrt{1+x^4}$
	2. $\frac{1}{2} \frac{x^2}{\sqrt{1-x^4}} + C$: where C is an arbitrary constant
	3. $\frac{1}{2} \frac{x^2}{\sqrt{1-x^2}} + C$: where C is an arbitrary constant
	4. $\frac{1}{2} \frac{x^2}{\sqrt{1+x^2}} + C$: where C is an arbitrary constant
Options	
A	1
B	2
C	3
D	4

Question ID	11024																				
Question Type	MCQ																				
Question	Match the LIST-I with LIST-II																				
	<table><tr><th colspan="2">LIST-I</th><th colspan="2">LIST-II</th></tr><tr><td>A.</td><td>$\int_{-1}^1 2x \, dx =$</td><td>I.</td><td>$\frac{1}{4}$</td></tr><tr><td>B.</td><td>$\int_{-1}^1 x^2 \, dx =$</td><td>II.</td><td>0</td></tr><tr><td>C.</td><td>$\int_0^1 x^3 \, dx =$</td><td>III.</td><td>2</td></tr><tr><td>D.</td><td>$\int_{-1}^1 5x^4 \, dx =$</td><td>IV.</td><td>$\frac{2}{3}$</td></tr></table>	LIST-I		LIST-II		A.	$\int_{-1}^1 2x \, dx =$	I.	$\frac{1}{4}$	B.	$\int_{-1}^1 x^2 \, dx =$	II.	0	C.	$\int_0^1 x^3 \, dx =$	III.	2	D.	$\int_{-1}^1 5x^4 \, dx =$	IV.	$\frac{2}{3}$
	LIST-I		LIST-II																		
	A.	$\int_{-1}^1 2x \, dx =$	I.	$\frac{1}{4}$																	
	B.	$\int_{-1}^1 x^2 \, dx =$	II.	0																	
C.	$\int_0^1 x^3 \, dx =$	III.	2																		
D.	$\int_{-1}^1 5x^4 \, dx =$	IV.	$\frac{2}{3}$																		
Choose the correct answer from the options given below:																					
1. A-I, B-II, C-III, D-IV																					
2. A-III, B-I, C-II, D-IV																					
3. A-IV, B-III, C-II, D-I																					
4. A-II, B-IV, C-I, D-III																					
Options																					
A	1																				
B	2																				
C	3																				
D	4																				

Question ID	11025
Question Type	MCQ
Question	The area of the region bounded by the line $2y = -x + 8$, x-axis and the lines $x = 0$ and $x = 2$ is
	1. 7 sq. units
	2. 5 sq. units
	3. 9 sq. units
	4. 10 sq. units
Options	
A	1
B	2
C	3
D	4

Question ID	11026
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Question Type	MCQ
Question	The general solution of the differential equation $y \, dx - (x + 2y^2) \, dy = 0$ is: 1. $xy = 2y + C$: where C is an arbitrary constant 2. $\frac{x}{y} = 2y + C$: where C is an arbitrary constant 3. $x = 2y^3 + C$: where C is an arbitrary constant 4. $\frac{y}{x} = 3y + C$: where C is an arbitrary constant
Options	
A	1
B	2
C	3
D	4

Question ID

11027

Question Type

MCQ

Question

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

LIST-I		LIST-II	
A.	Vector with direction ratios (1,2,2)	I.	$\hat{i}$
B.	Unit vector along x-axis	II.	$2\hat{i} - \hat{j} + 3\hat{k}$
C.	Position vector of point (2,-1,3)	III.	$\hat{i} + 2\hat{j} + 2\hat{k}$
D.	Vector perpendicular to both $\vec{a}$ and $\vec{b}$	IV.	$\vec{a} \times \vec{b}$

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

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

Options

A

1

B

2

C

3

D

4

Question ID	11028
Question Type	MCQ
Question	If $\vec{p} = 10$, $\vec{q} = 2$ and $\vec{p} \cdot \vec{q} = 12$. Then the value of $\vec{p} \times \vec{q} ^2$ is: 1. 16 2. 256 3. 400 4. 144
Options	
A	1
B	2
C	3
D	4

Question ID	11029
Question Type	MCQ
Question	The equation of a line passing through $(2, -2, 0)$ and parallel to the line $\frac{x-3}{2} = \frac{2y+1}{3} = \frac{4-z}{1}$ is $\frac{x-2}{4} = \frac{y+2}{3} = \frac{z-0}{-2}$ $\frac{x-2}{3} = \frac{y+2}{2} = \frac{z-0}{3}$ $\frac{x-2}{2} = \frac{y+2}{3} = \frac{z-0}{1}$ $\frac{x-2}{3} = \frac{y+2}{4} = \frac{z-0}{-1}$
Options	
A	1
B	2
C	3
D	4

Question ID	11030
Question Type	MCQ
Question	The maximum value of $z = 3x + 4y$, subject to the constraints $2x + 2y \leq 80, 2x + 4y \leq 120, x, y \geq 0$ is: 100 120 140 130
Options	
A	1
B	2
C	3
D	4

Question ID	11031
Question Type	MCQ
Question	Bag I contains 3 red and 4 black balls while another Bag II contains 5 red and 6 black balls. One ball is drawn at random from one of the bags and it is found to be red. Then the probability that it was drawn from Bag II: $\frac{35}{68}$ $\frac{5}{6}$ $\frac{3}{4}$ 1
Options	
A	1
B	2
C	3
D	4