

Question ID	19991004
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	19991005
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	19991006
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	19991007
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	19991008
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	19991009
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	19991010
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	19991011
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

19991012

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 19991013

Question Type MCQ

The degree of the differential equation

Question
$$\sqrt{\frac{dy}{dx}} = 1 + \frac{dy}{dx} + \frac{\left(\frac{dy}{dx}\right)^2}{2!} + \frac{\left(\frac{dy}{dx}\right)^3}{3!} + \dots$$
 is

1. Does not exist
2. 1
3. 2
4. ∞

Options

A	1
B	2
C	3
D	4

Question ID	11032
Question Type	MCQ
Question	The unit digit of 13^{37} is: 1. 7 2. 2 3. 1 4. 3
Options	
A	1
B	2
C	3
D	4

Question ID	11033
Question Type	MCQ
Question	A tap can fill a tank in 60 minutes whereas another tap can empty it in 2 hours. If both the taps are opened at 9:40 am, at what time the tank will be filled? 1. 10:00 am 2. 10:40 am 3. 11:00 am 4. 11:40 am
Options	
A	1
B	2
C	3
D	4

Question ID	11034
Question Type	MCQ
Question	If $\begin{vmatrix} 2x & 5 \\ 8 & x \end{vmatrix} = \begin{vmatrix} 6 & -2 \\ 7 & 3 \end{vmatrix}$, then value of x is 1. -6 2. 6 3. ±6 4. ±3
Options	
A	1
B	2
C	3
D	4

Question ID	11035
Question Type	MCQ
	If A is a square matrix of order n, then which one of the following is NOT correct? 1. $A^{-1} = \frac{1}{ A }(adjA), A \neq 0$ 2. $A^{-1} = \frac{1}{ A }$ 3. $A^{-1} = A$ 4. $A^{-1} = A ^{-1}$

Question	2. $\left A^{-1}\right =\frac{1}{ A }, A \neq 0$ 3. $adj A = A ^{n-1}$ 4. $adj A= A \cdot A$
Options	
A	1
B	2
C	3
D	4

Question ID

11036

Question Type

MCQ

Question

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

LIST-I		LIST-II	
A.	$X + Y = \begin{bmatrix} 7 & 0 \\ 2 & 5 \end{bmatrix}, X - Y = \begin{bmatrix} 3 & 0 \\ 0 & 3 \end{bmatrix}$	I.	$X = \begin{bmatrix} 5 & 1 \\ 2 & 4 \end{bmatrix}, Y = \begin{bmatrix} 2 & 1 \\ 2 & 1 \end{bmatrix}$
B.	$X + Y = \begin{bmatrix} 7 & 2 \\ 4 & 5 \end{bmatrix}, X - Y = \begin{bmatrix} 3 & 0 \\ 0 & 3 \end{bmatrix}$	II.	$X = \begin{bmatrix} 5 & 2 \\ 2 & 4 \end{bmatrix}, Y = \begin{bmatrix} 2 & 2 \\ 2 & 1 \end{bmatrix}$
C.	$X + Y = \begin{bmatrix} 7 & 2 \\ 2 & 5 \end{bmatrix}, X - Y = \begin{bmatrix} 3 & 0 \\ 0 & 3 \end{bmatrix}$	III.	$X = \begin{bmatrix} 5 & 0 \\ 1 & 4 \end{bmatrix}, Y = \begin{bmatrix} 2 & 0 \\ 1 & 1 \end{bmatrix}$
D.	$X + Y = \begin{bmatrix} 7 & 4 \\ 4 & 5 \end{bmatrix}, X - Y = \begin{bmatrix} 3 & 0 \\ 0 & 3 \end{bmatrix}$	IV.	$X = \begin{bmatrix} 5 & 1 \\ 1 & 4 \end{bmatrix}, Y = \begin{bmatrix} 2 & 1 \\ 1 & 1 \end{bmatrix}$

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

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

Options

A

1

B

2

C

3

D

4

Question ID	11037
Question Type	MCQ
Question	If $y = ax + \frac{b}{x}, x \neq 0$, then $y = y(x)$ is a solution of the differential equation 1. $x^2 \frac{d^2 y}{dx^2} + x \frac{dy}{dx} - y = 0$ 2. $\frac{d^2 y}{dx^2} + \frac{dy}{dx} - y = 0$ 3. $x^2 \frac{d^2 y}{dx^2} + x \frac{dy}{dx} + y = 0$ 4. $x^2 \frac{d^2 y}{dx^2} - x \frac{dy}{dx} - y = 0$
Options	

A	1
B	2
C	3
D	4

Question ID	11038
Question Type	MCQ
Question	$\int e^x \left(\frac{1-x}{1+x^2} \right)^2 dx$ is equal to: (c is an arbitrary constant) $\frac{e^x}{\left(1+x^2\right)^2} + c$ $\frac{-e^x}{\left(1+x^2\right)^2} + c$ $\frac{e^x}{1+x^2} + c$ $\frac{-e^x}{1+x^2} + c$
Options	
A	1
B	2
C	3
D	4

Question ID	11039
Question Type	MCQ
Question	A fair coin is tossed until a head or five tails occur. If X denotes the number of tosses of the coin, then the mean of X is: $\frac{33}{16}$ $\frac{32}{17}$ $\frac{31}{16}$ $\frac{29}{18}$
Options	
A	1
B	2
C	3
D	4

Question ID	11040
Question Type	MCQ
Question	In a class test, students scores are found to be normally distributed having mean as 45 and standard deviation 5, then percentage of students have scores more than the mean score is: 25% 50% 75% 37.5%

Options	
A	1
B	2
C	3
D	4

Question ID	11041
Question Type	MCQ
Question	For the values 150, 180, 190, 220, 260, 370, 220, 640, 360 and 540, the three-yearly moving averages are: 173.33, 196.66, 196.33, 200, 220, 280.33, 400, 500.33 170, 182, 189, 230, 250, 350, 410, 480 150, 170, 200, 230, 250, 400, 410, 450 173.33, 196.66, 223.33, 283.33, 283.33, 410, 406.66, 513.33
Options	
A	1
B	2
C	3
D	4

Question ID	11042
Question Type	MCQ
Question	For linear programming problem (LPP) Minimize $Z = 3x + 2y$: subject to $x - y \leq -1, -x + y \leq 0, x, y \geq 0$, which of the following is correct? - Infinite optimal solutions exist - Unique optimal solution exist - The corner points of the bounded feasible region are (0,0), (1,0) and (1,1) - No feasible region exist.
Options	
A	1
B	2
C	3
D	4

Question ID

11043

Question Type

MCQ

Question

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

LIST-I [Parametric curve]		LIST-II $\frac{dy}{dx}$ at $t = 1$	
A.	$x = t^2, y = 2t$	I.	$\frac{2}{3}$
B.	$x = t^3, y = 3t^2$	II.	-1
C.	$x = \frac{1}{t}, y = \log t$	III.	2
D.	$x = 3t, y = t - \frac{1}{t}$	IV.	1

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

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

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

Options

A	1
B	2
C	3
D	4

Question ID 11044

Question Type MCQ

Question

For $f(x) = 2x^3 - 15x^2 + 36x + 100$, $x \in \mathbb{R}$, which of the following is TRUE?

1. $f(x)$ is strictly increasing in $(2, \infty)$
2. $f(x)$ is strictly decreasing in $[-2, 3)$
3. $f(x)$ is strictly decreasing in $(-\infty, 1] \cup [3, \infty)$
4. $f(x)$ is strictly increasing in $(-\infty, 2] \cup [3, \infty)$

Options

A	1
B	2
C	3
D	4

Question ID 11045

Question Type MCQ

Question

Which of the following is correct about the compound annual growth rate (CAGR)?

- A. It can be used to calculate and communicate the average growth of a single investment.
- B. It is calculated by taking arithmetic mean of series of returns.
- C. It describes the effect of compounding.
- D. It can be used to compare the historical returns of stocks with a saving account.

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

1. A, B and C only
2. B, C and D only
3. A, B and C only
4. A, C and D only

Options

A	1
B	2
C	3
D	4

Question ID 11046

Question Type MCQ

Question

The annual depreciation of a car is ₹ 60,000. If the scrap value of the car after 15 years is ₹ 1,00,000, then which of the following statements are correct?

- A. The original cost of the car was ₹ 9,00,000.
- B. The original cost of the car was ₹ 10,00,000.
- C. The book value of the car after 5 years was ₹ 8,00,000.
- D. The book value of the car after 10 years was ₹ 4,00,000.

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

1. A and C only

1. A and C only
2. B and D only
3. B and C only
4. A and D only

Options	
A	1
B	2
C	3
D	4

Question ID	11047
Question Type	MCQ

Question	Consider the following hypothesis test:
	$H_0 : \mu = 18$
	$H_a : \mu \neq 18$
	A sample of 26 provided a sample mean $\bar{x} = 17$ and a sample standard deviation $S = 2.5$. The value of test statistic is:
	1. -2 2. 0.15 3. 4.50 4. -3.75
Options	
A	1
B	2
C	3
D	4

Question ID	11048
Question Type	MCQ

Question	At what rate of interest will the present value of a perpetuity of ₹ 1000 payable at the end of every six months be ₹ 40000?
	1. 10% 2. 5% 3. 8% 4. 12%
Options	
A	1
B	2
C	3
D	4

Question ID	11049
Question Type	MCQ

Question	A statement made about a population parameter for testing purpose is called:
	1. Statistic 2. Parameter 3. Null hypothesis 4. Level of significance
Options	
A	1
B	2
C	3
D	4