

National Testing Agency

Question Paper Name :	02 15062023
Subject Name :	15Jun2023 Shift2 Subject Combination 1
Creation Date :	2023-06-15 15:15:25
Duration :	120
Total Marks :	400
Display Marks:	Yes

Mathematics

Group Number :	1
Group Id :	212807615
Group Maximum Duration :	60
Group Minimum Duration :	60
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	200
Is this Group for Examiner? :	No
Examiner permission :	Cant View
Show Progress Bar? :	No

Common

Section Id :	212807717
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	15
Number of Questions to be attempted :	15
Section Marks :	75
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	2128072058
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 1 Question Id : 21280728161 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :	
Key	Value
Comprehension	MCQ1

Let $A = [a_{ij}]$ be a 2×2 matrix such that $a_{ij} = \frac{|-3i + j|}{2}$ then a_{21} is :

- (1) $-\frac{1}{2}$
- (2) $\frac{5}{2}$
- (3) $-\frac{5}{2}$
- (4) $\frac{1}{2}$

Options :
 212807112641. 1
 212807112642. 2
 212807112643. 3
 212807112644. 4

Question Number : 1 Question Id : 21280728161 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ1

यदि $A = [a_{ij}]$, 2×2 कोटि का वर्ग आव्यूह है इस प्रकार है कि $a_{ij} = \frac{|-3i + j|}{2}$, तब a_{21} है :

- (1) $-\frac{1}{2}$
- (2) $\frac{5}{2}$
- (3) $-\frac{5}{2}$
- (4) $\frac{1}{2}$

Options :
 212807112641. 1
 212807112642. 2
 212807112643. 3
 212807112644. 4

Question Number : 2 Question Id : 21280728162 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ1

If $A = \begin{bmatrix} -2 & 6 \\ -5 & -1 \end{bmatrix}$ then A^{-1} is :

(1) $\frac{1}{28} \begin{bmatrix} 2 & -5 \\ 6 & -1 \end{bmatrix}$

(2) $\frac{1}{32} \begin{bmatrix} -1 & 6 \\ -5 & -2 \end{bmatrix}$

(3) $\frac{1}{32} \begin{bmatrix} -1 & -6 \\ 5 & -2 \end{bmatrix}$

(4) $\frac{-1}{28} \begin{bmatrix} -1 & -6 \\ -5 & -2 \end{bmatrix}$

Options :

- 212807112645. 1
- 212807112646. 2
- 212807112647. 3
- 212807112648. 4

Question Number : 2 Question Id : 21280728162 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ1

यदि $A = \begin{bmatrix} -2 & 6 \\ -5 & -1 \end{bmatrix}$, तो A^{-1} है :

(1) $\frac{1}{28} \begin{bmatrix} 2 & -5 \\ 6 & -1 \end{bmatrix}$

(2) $\frac{1}{32} \begin{bmatrix} -1 & 6 \\ -5 & -2 \end{bmatrix}$

(3) $\frac{1}{32} \begin{bmatrix} -1 & -6 \\ 5 & -2 \end{bmatrix}$

(4) $\frac{-1}{28} \begin{bmatrix} -1 & -6 \\ -5 & -2 \end{bmatrix}$

Options :

- 212807112645. 1
- 212807112646. 2
- 212807112647. 3
- 212807112648. 4

Question Number : 3 Question Id : 21280728163 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ1

The value of $\begin{vmatrix} \sqrt{3}/2 & 1/2 \\ \sqrt{3}/2 & 1/2 \end{vmatrix}$

- (1) 0
- (2) 1
- (3) $\frac{\sqrt{3}}{2}$
- (4) $\frac{1}{2}$

Options :

212807112649. 1
212807112650. 2
212807112651. 3
212807112652. 4

Question Number : 3 Question Id : 21280728163 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ1

$\begin{vmatrix} \sqrt{3}/2 & 1/2 \\ \sqrt{3}/2 & 1/2 \end{vmatrix}$ का मान है :

- (1) 0
- (2) 1
- (3) $\frac{\sqrt{3}}{2}$
- (4) $\frac{1}{2}$

Options :

212807112649. 1
212807112650. 2
212807112651. 3
212807112652. 4

Question Number : 4 Question Id : 21280728164 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ1

If A is a square matrix of order 3 such that $|A|=2$, then the value of $|\text{adj}(\text{adj} A)|$ is :

- (1) 2
- (2) 4
- (3) 8
- (4) 16

Options :

- 212807112653. 1
- 212807112654. 2
- 212807112655. 3
- 212807112656. 4

Question Number : 4 Question Id : 21280728164 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ1

यदि A, 3 कोटि का वर्ग आव्यूह है जहाँ $|A|=2$ तब $|\text{dj}(\text{adj} A)|$ है :

- (1) 2
- (2) 4
- (3) 8
- (4) 16

Options :

- 212807112653. 1
- 212807112654. 2
- 212807112655. 3
- 212807112656. 4

Question Number : 5 Question Id : 21280728165 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ1

If $y = \log \left[\frac{x^2}{e^2} \right]$ then value of $\frac{d^2y}{dx^2}$ is :

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

Options :

- 212807112657. 1
- 212807112658. 2

212807112659. 3
212807112660. 4

Question Number : 5 Question Id : 21280728165 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	MCQ1

यदि $y = \log \left[\frac{x^2}{e^2} \right]$ तब $\frac{d^2y}{dx^2}$ का मान है :

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

Options :
212807112657. 1
212807112658. 2
212807112659. 3
212807112660. 4

Question Number : 6 Question Id : 21280728166 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	MCQ1

The condition on a and b, such that for $y = \frac{a}{x} - \frac{b}{x^2}$, $\frac{dy}{dx} = 0$ at $x = 1$ is :

- (1) $b = 2a$
- (2) $b = -2b$
- (3) $a = 2b$
- (4) $b = -2a$

Options :
212807112661. 1
212807112662. 2
212807112663. 3
212807112664. 4

Question Number : 6 Question Id : 21280728166 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	MCQ1

यदि $y = \frac{a}{x} - \frac{b}{x^2}$ तथा $x=1$ पर $\frac{dy}{dx} = 0$ है, तो a तथा b के बीच सम्बन्ध है :

- (1) $b = 2a$
- (2) $b = -2b$
- (3) $a = 2b$
- (4) $b = -2a$

Options :

- 212807112661. 1
- 212807112662. 2
- 212807112663. 3
- 212807112664. 4

Question Number : 7 Question Id : 21280728167 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	MCQ1

The interval in which the function $f(x) = 10 - 6x - 2x^2$ is decreasing is :

- (1) $\left(\frac{-3}{2}, \frac{3}{2}\right)$
- (2) $\left(-\infty, \frac{-3}{2}\right)$
- (3) $\left(\frac{-3}{2}, \infty\right)$
- (4) $\left(-\infty, \frac{3}{2}\right)$

Options :

- 212807112665. 1
- 212807112666. 2
- 212807112667. 3
- 212807112668. 4

Question Number : 7 Question Id : 21280728167 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	MCQ1

वह अन्तराल जिसमें फलन $f(x) = 10 - 6x - 2x^2$ ह्रासमान है :

- (1) $\left(\frac{-3}{2}, \frac{3}{2}\right)$
- (2) $\left(-\infty, \frac{-3}{2}\right)$
- (3) $\left(\frac{-3}{2}, \infty\right)$
- (4) $\left(-\infty, \frac{3}{2}\right)$

Options :

- 212807112665. 1
- 212807112666. 2
- 212807112667. 3
- 212807112668. 4

Question Number : 8 Question Id : 21280728168 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ1

Area of the region bounded by the curve $|x| + |y| = 1$ and x-axis is :

- (1) 1
- (2) 2
- (3) $\frac{1}{2}$
- (4) $\frac{3}{2}$

Options :

- 212807112669. 1
- 212807112670. 2
- 212807112671. 3
- 212807112672. 4

Question Number : 8 Question Id : 21280728168 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ1

वक्र $|x| + |y| = 1$ तथा x - अक्ष से परिबद्ध क्षेत्र का क्षेत्रफल है :

- (1) 1
- (2) 2
- (3) $\frac{1}{2}$
- (4) $\frac{3}{2}$

Options :

- 212807112669. 1
- 212807112670. 2
- 212807112671. 3
- 212807112672. 4

Question Number : 9 Question Id : 21280728169 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ1

The value of the integral $\int_2^4 \frac{x}{x^2 + 1} dx$ is :

- (1) $\frac{1}{2} \log\left(\frac{5}{17}\right)$
- (2) $\frac{1}{2} \log\left(\frac{17}{5}\right)$
- (3) $2 \log\left(\frac{5}{17}\right)$
- (4) $2 \log\left(\frac{17}{5}\right)$

Options :

- 212807112673. 1
- 212807112674. 2
- 212807112675. 3
- 212807112676. 4

Question Number : 9 Question Id : 21280728169 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ1

समाकलन $\int_2^4 \frac{x}{x^2 + 1} dx$ का मान है :

- (1) $\frac{1}{2} \log\left(\frac{5}{17}\right)$
- (2) $\frac{1}{2} \log\left(\frac{17}{5}\right)$
- (3) $2 \log\left(\frac{5}{17}\right)$
- (4) $2 \log\left(\frac{17}{5}\right)$

Options :

- 212807112673. 1
- 212807112674. 2
- 212807112675. 3
- 212807112676. 4

Question Number : 10 Question Id : 21280728170 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ1

The sum of order and degree of the differential equation $\frac{\left\{1 + \left(\frac{dy}{dx}\right)^2\right\}^{\frac{5}{2}}}{\frac{d^2y}{dx^2}} = p$ is :

- (1) 2
- (2) 3
- (3) 4
- (4) 5

Options :

- 212807112677. 1
- 212807112678. 2
- 212807112679. 3
- 212807112680. 4

Question Number : 10 Question Id : 21280728170 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ1

(1)	2
(2)	3
(3)	4
(4)	5

212807112677. 1
212807112678. 2
212807112679. 3
212807112680. 4

Question Key Details :

The solution of the differential equation $\frac{dy}{dx} = \frac{6}{x^2}; y(1) = 3$ is :

- (1) $y = 9 + \frac{6}{x}$
- (2) $y = 9 - \frac{6}{x}$
- (3) $y = -9 + \frac{6}{x}$
- (4) $y = -9 - \frac{6}{x}$

212807112681. 1
212807112682. 2
212807112683. 3
212807112684. 4

Question Key Details :

Key	Value
Comprehension	MCO1

अवकल समीकरण $\frac{dy}{dx} = \frac{6}{x^2}; y(1) = 3$ का हल है :

(1) $y = 9 + \frac{6}{x}$

(2) $y = 9 - \frac{6}{x}$

(3) $y = -9 + \frac{6}{x}$

(4) $y = -3 - \frac{6}{x}$

Options :

- 212807112681. 1
- 212807112682. 2
- 212807112683. 3
- 212807112684. 4

Question Number : 12 Question Id : 21280728172 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	MCQ1

The random variable X has a probability distribution P(X) of the following form, where k is some number.

$$P(X = x) = \begin{cases} k, & \text{if } x = 0 \\ 2k, & \text{if } x = 1 \\ 3k, & \text{if } x = 2 \\ 0, & \text{otherwise} \end{cases}$$

Then $P(x \leq 2)$ is :

- (1) 0
- (2) 1
- (3) $\frac{1}{6}$
- (4) $\frac{1}{2}$

Options :

- 212807112685. 1
- 212807112686. 2
- 212807112687. 3
- 212807112688. 4

Question Number : 12 Question Id : 21280728172 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	MCQ1

यदि यादृच्छि चर X की प्रायिकता बंटन $P(X)$ निम्न प्रकार है जहाँ k कोई संख्या है :

$$P(X = x) \begin{cases} k, & \text{यदि } x = 0 \\ 2k, & \text{यदि } x = 1 \\ 3k, & \text{यदि } x = 2 \\ 0, & \text{यदि अन्यथा} \end{cases}$$

तब $P(x \leq 2)$ है :

- (1) 0
- (2) 1
- (3) $\frac{1}{6}$
- (4) $\frac{1}{2}$

Options :

212807112685. 1
212807112686. 2
212807112687. 3
212807112688. 4

Question Number : 13 Question Id : 21280728173 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 5 Wrong Marks : 1 Question Key Details :

Key	Value
Comprehension	MCQ1

The mean of the number of heads in a simultaneous toss of three coins is :

- (1) 1
- (2) $\frac{1}{2}$
- (3) $\frac{3}{2}$
- (4) 2

Options :

212807112689. 1
212807112690. 2
212807112691. 3
212807112692. 4

Question Number : 13 Question Id : 21280728173 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 5 Wrong Marks : 1 Question Key Details :

Key	Value
Comprehension	MCQ1

तीन सिक्कों की उछाल पर चित्तों की संख्या का माध्य है :

- (1) 1
- (2) $\frac{1}{2}$
- (3) $\frac{3}{2}$
- (4) 2

Options :

- 212807112689. 1
- 212807112690. 2
- 212807112691. 3
- 212807112692. 4

Question Number : 14 Question Id : 21280728174 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ1

For the LPP

Maximise $z = x + y$

subject to $x - y \leq -1, -x + y \leq 2, x, y \geq 0, z$ has :

- (1) Max. value = $\frac{2}{3}$
- (2) Max. value = 5
- (3) Max. value = 11
- (4) No Max. value

Options :

- 212807112693. 1
- 212807112694. 2
- 212807112695. 3
- 212807112696. 4

Question Number : 14 Question Id : 21280728174 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ1

LPP पर विचार करें :

अधिकतम $z = x + y$

व्यवरोधों $x - y \leq -1, -x + y \leq 2, x, y \geq 0$, के अंतर्गत z रखता है :

- (1) अधिकतम मान $= \frac{2}{3}$
- (2) अधिकतम मान $= 5$
- (3) अधिकतम मान $= 11$
- (4) कोई अधिकतम मान नहीं ।

Options :

- 212807112693. 1
- 212807112694. 2
- 212807112695. 3
- 212807112696. 4

Question Number : 15 Question Id : 21280728175 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	MCQ1

Choose the **wrong** statement from the following :

- (1) A LPP is an optimization problem
- (2) In a LPP the constraints and objective function are linear
- (3) $\text{Max } z = xy + 2x + 3y$ can be a valid objective function for a LPP
- (4) The optimal solution of a LPP is at one of the corner points of basic feasible solution

Options :

- 212807112697. 1
- 212807112698. 2
- 212807112699. 3
- 212807112700. 4

Question Number : 15 Question Id : 21280728175 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	MCQ1

निम्न में से असत्य कथन चुनें :

- (1) एक LPP इष्टतम समस्या है।
- (2) एक LPP में व्यवरोध तथा उद्देश्य फलन रैखिक होते हैं।
- (3) एक LPP के लिये उद्देश्य फलन अधिकतम $z = xy + 2x + 3y$ वैध हो सकता है।
- (4) एक LPP का इष्टतम हल आधारभूत सुसंगत हल के एक कोनीय बिन्दु पर होगा।

Options :

- 212807112697. 1
- 212807112698. 2
- 212807112699. 3

Core Mathematics

Section Id :	212807718
Section Number :	2
Section type :	Online
Mandatory or Optional :	Optional
Number of Questions :	35
Number of Questions to be attempted :	25
Section Marks :	125
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	2128072059
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 16 Question Id : 21280728176 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ2

Given relation $R = \{(x, y) : y = x + 5, x < 4, x, y \in \mathbb{N}\}$. Where $\mathbb{N}$ is a set of natural numbers then :

- (1) R is an equivalence relation.
- (2) R is transitive but neither reflexive nor symmetric.
- (3) R is reflexive but neither symmetric nor transitive.
- (4) R is symmetric & transitive but not reflexive.

Options :

- 212807112701. 1
- 212807112702. 2
- 212807112703. 3
- 212807112704. 4

Question Number : 16 Question Id : 21280728176 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ2

दिया गया सम्बन्ध $R = \{(x, y) : y = x + 5, x < 4, x, y \in \mathbb{N}\}$, जहाँ $\mathbb{N}$ प्राकृत संख्याओं का समुच्चय है, तब :

- (1) R तुल्यता सम्बन्ध है।
- (2) R संक्रामक है किन्तु न तो स्वतुल्य है न ही सममित है।
- (3) R स्वतुल्य है किन्तु न तो सममित है न ही संक्रामक है।
- (4) R सममित तथा संक्रामक है किन्तु स्वतुल्य नहीं है।

Options :

- 212807112701. 1
- 212807112702. 2
- 212807112703. 3
- 212807112704. 4

Question Number : 17 Question Id : 21280728177 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	MCQ2

Let $f: \mathbb{R} \rightarrow \mathbb{R}$ defined by $f(x) = 2x^3 - 7$ for $x \in \mathbb{R}$. Then :

- (A) f is one-one function
- (B) f is many to one function
- (C) f is bijective function
- (D) f is into function

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

- (1) (A) and (D) only
- (2) (B) and (D) only
- (3) (B) and (C) only
- (4) (A) and (C) only

Options :
212807112705. 1
212807112706. 2
212807112707. 3
212807112708. 4

Question Number : 17 Question Id : 21280728177 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	MCQ2

यदि $f: \mathbb{R} \rightarrow \mathbb{R}$, $f(x) = 2x^3 - 7$, $x \in \mathbb{R}$ द्वारा परिभाषित है, तब :

- (A) f एकैकी फलन है।
- (B) f बहुएक फलन है।
- (C) f एकैकी आच्छादक फलन है।
- (D) f अन्तर्क्षेपी फलन है।

नीचे दिए गए विकल्पों में से **सही** उत्तर का चयन कीजिए।

- (1) केवल (A) तथा (D)
- (2) केवल (B) तथा (D)
- (3) केवल (B) तथा (C)
- (4) केवल (A) तथा (C)

Options :
212807112705. 1
212807112706. 2
212807112707. 3
212807112708. 4

Question Number : 18 Question Id : 21280728178 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	MCQ2

Match List - I with List - II.

- List - I**

(A) Range of $y = \operatorname{cosec}^{-1}x$

(B) Domain of $\sec^{-1}x$

(C) Domain of $\sin^{-1}x$

(D) Range of $y = \cot^{-1}x$
- List - II**

(I) $\mathbb{R} - (-1, 1)$

(II) $(0, \pi)$

(III) $[-1, 1]$

(IV) $\left[\frac{-\pi}{2}, \frac{\pi}{2}\right] - \{0\}$

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

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

Options :
212807112709. 1
212807112710. 2
212807112711. 3
212807112712. 4

Question Number : 18 Question Id : 21280728178 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	MCQ2

सूची - I तथा सूची - II का मिलान करें :

- सूची - I**

(A) $y = \operatorname{cosec}^{-1}x$ का परिसर

(B) $\sec^{-1}x$ का प्रान्त

(C) $\sin^{-1}x$ का प्रान्त

(D) $y = \cot^{-1}x$ का परिसर
- सूची - II**

(I) $\mathbb{R} - (-1, 1)$

(II) $(0, \pi)$

(III) $[-1, 1]$

(IV) $\left[\frac{-\pi}{2}, \frac{\pi}{2}\right] - \{0\}$

नीचे दिए गए विकल्पों में से **सही** उत्तर का चयन कीजिए।

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

Options :

212807112709. 1
212807112710. 2
212807112711. 3
212807112712. 4

Question Number : 19 Question Id : 21280728179 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ2

Let $\tan^{-1}y = \tan^{-1}x + \tan^{-1}\left(\frac{2x}{1-x^2}\right)$. Then y is :

(1) $\frac{3x-x^3}{1-3x^2}$

(2) $\frac{3x+x^3}{1-3x^2}$

(3) $\frac{3x-x^3}{1+3x^2}$

(4) $\frac{3x+x^3}{1+3x^2}$

Options :

212807112713. 1
212807112714. 2
212807112715. 3
212807112716. 4

Question Number : 19 Question Id : 21280728179 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ2

यदि $\tan^{-1}y = \tan^{-1}x + \tan^{-1}\left(\frac{2x}{1-x^2}\right)$, तब y है :

- (1) $\frac{3x-x^3}{1-3x^2}$
- (2) $\frac{3x+x^3}{1-3x^2}$
- (3) $\frac{3x-x^3}{1+3x^2}$
- (4) $\frac{3x+x^3}{1+3x^2}$

Options :

212807112713. 1
212807112714. 2
212807112715. 3
212807112716. 4

Question Number : 20 Question Id : 21280728180 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
 Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
 Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ2

The value of $2y-3x$, if

$$2\begin{bmatrix} x & 5 \\ 7 & y-3 \end{bmatrix} + \begin{bmatrix} 3 & -4 \\ 1 & 2 \end{bmatrix} = \begin{bmatrix} 7 & 6 \\ 15 & 14 \end{bmatrix}$$

is :

- (1) 12
- (2) -10
- (3) 6
- (4) -5

Options :

212807112717. 1
212807112718. 2
212807112719. 3
212807112720. 4

Question Number : 20 Question Id : 21280728180 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
 Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
 Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ2

यदि $2\begin{bmatrix} x & 5 \\ 7 & y-3 \end{bmatrix} + \begin{bmatrix} 3 & -4 \\ 1 & 2 \end{bmatrix} = \begin{bmatrix} 7 & 6 \\ 15 & 14 \end{bmatrix}$ है, तब $2y-3x$, का मान है :

- (1) 12
- (2) -10
- (3) 6
- (4) -5

Options :

- 212807112717. 1
- 212807112718. 2
- 212807112719. 3
- 212807112720. 4

Question Number : 21 Question Id : 21280728181 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ2

Match List - I with List - II. If $A = \begin{bmatrix} 3 & -2 & 3 \\ 2 & 1 & -1 \\ 4 & -3 & 2 \end{bmatrix}$

List - I

- (A) M_{23}
- (B) $A_{32} + a_{13}$
- (C) A
- (D) $a_{13}A_{12} + a_{23}A_{22} + a_{33}A_{32}$

List - II

- (I) -17
- (II) -1
- (III) 0
- (IV) 12

Choose the correct answer from the options given below :

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

Options :

- 212807112721. 1
- 212807112722. 2
- 212807112723. 3
- 212807112724. 4

Question Number : 21 Question Id : 21280728181 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ2

यदि $A = \begin{vmatrix} 3 & -2 & 3 \\ 2 & 1 & -1 \\ 4 & -3 & 2 \end{vmatrix}$ तब सूची - I तथा सूची - II को सुमेलित करें :

- | सूची - I | सूची - II |
|--|-----------|
| (A) M_{23} | (I) -17 |
| (B) $A_{32} + a_{13}$ | (II) -1 |
| (C) A | (III) 0 |
| (D) $a_{13}A_{12} + a_{23}A_{22} + a_{33}A_{32}$ | (IV) 12 |

नीचे दिए गये विकल्पों में से सही उत्तर का चयन कीजिए।

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

Options :

- 212807112721. 1
- 212807112722. 2
- 212807112723. 3
- 212807112724. 4

Question Number : 22 Question Id : 21280728182 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	MCQ2

The number of square matrices of order 2 using numbers 1 and -1 exactly once and the number 0 twice is :

- (1) 24
- (2) 09
- (3) 12
- (4) 6

Options :

- 212807112725. 1
- 212807112726. 2
- 212807112727. 3
- 212807112728. 4

Question Number : 22 Question Id : 21280728182 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	MCQ2

1 तथा -1 को कवल 1 बार तथा 0 को 2 बार उपयोग करके 2 कोटि के वर्ग आव्यूहों की संख्या है :

- (1) 24
- (2) 09
- (3) 12
- (4) 6

Options :

- 212807112725. 1
- 212807112726. 2
- 212807112727. 3
- 212807112728. 4

Question Number : 23 Question Id : 21280728183 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ2

Let $\begin{vmatrix} 3x & -7 \\ 1 & 4 \end{vmatrix} = \begin{vmatrix} 3 & 2 \\ 4 & x \end{vmatrix}$, then value of x is :

- (1) $\frac{-5}{3}$
- (2) 1
- (3) -1
- (4) $\frac{2}{7}$

Options :

- 212807112729. 1
- 212807112730. 2
- 212807112731. 3
- 212807112732. 4

Question Number : 23 Question Id : 21280728183 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ2

माना $\begin{vmatrix} 3x & -7 \\ 1 & 4 \end{vmatrix} = \begin{vmatrix} 3 & 2 \\ 4 & x \end{vmatrix}$, तब x का मान है :

- (1) $\frac{-5}{3}$
- (2) 1
- (3) -1
- (4) $\frac{2}{7}$

Options :

212807112729. 1
212807112730. 2
212807112731. 3
212807112732. 4

Question Number : 24 Question Id : 21280728184 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ2

The value of the determinant $\begin{vmatrix} a\cos\theta & b\sin\theta & 0 \\ -b\sin\theta & a\cos\theta & 0 \\ 0 & 0 & c \end{vmatrix}$ is :

- (1) $(a^2 + b^2)c$
- (2) $(a^2\cos^2\theta + b^2\sin^2\theta)c$
- (3) $(a^2\cos^2\theta - b^2\sin^2\theta)c$
- (4) $(a^2 + b^2)c^2$

Options :

212807112733. 1
212807112734. 2
212807112735. 3
212807112736. 4

Question Number : 24 Question Id : 21280728184 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ2

सारणिक $\begin{vmatrix} a\cos\theta & b\sin\theta & 0 \\ -b\sin\theta & a\cos\theta & 0 \\ 0 & 0 & c \end{vmatrix}$ का मान है :

- (1) $(a^2 + b^2)c$
- (2) $(a^2\cos^2\theta + b^2\sin^2\theta)c$
- (3) $(a^2\cos^2\theta - b^2\sin^2\theta)c$
- (4) $(a^2 + b^2)c^2$

Options :

212807112733. 1
212807112734. 2
212807112735. 3
212807112736. 4

Question Number : 25 Question Id : 21280728185 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ2

If the points (2, 1), (−1, 4) and (a, 3) are collinear then the value/(s) of a is/(are) :

- (1) 1, 2
- (2) 3, 0
- (3) 0
- (4) 2, 1

Options :

- 212807112737. 1
- 212807112738. 2
- 212807112739. 3
- 212807112740. 4

Question Number : 25 Question Id : 21280728185 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ2

यदि बिन्दु (2, 1), (−1, 4) तथा (a, 3) संरेखीय है तब a का/के मान हैं :

- (1) 1, 2
- (2) 3, 0
- (3) 0
- (4) 2, 1

Options :

- 212807112737. 1
- 212807112738. 2
- 212807112739. 3
- 212807112740. 4

Question Number : 26 Question Id : 21280728186 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ2

The points of discontinuity of the function f defined by $f(x) = \begin{cases} x + 2 & x \leq 1 \\ x - 2 & 1 < x < 2 \\ 0 & x \geq 2 \end{cases}$ are :

- (1) 0 and 1
- (2) 1 and 2
- (3) 1
- (4) 2

Options :

- 212807112741. 1
- 212807112742. 2
- 212807112743. 3
- 212807112744. 4

Question Number : 26 Question Id : 21280728186 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ2

फलन f के असांतत्यता के बिन्दु, जहाँ $f(x) = \begin{cases} x + 2 & x \leq 1 \\ x - 2 & 1 < x < 2 \\ 0 & x \geq 2 \end{cases}$ है :

- (1) 0 तथा 1
- (2) 1 तथा 2
- (3) 1
- (4) 2

Options :

- 212807112741. 1
- 212807112742. 2
- 212807112743. 3
- 212807112744. 4

Question Number : 27 Question Id : 21280728187 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ2

If $\cos y = x \cos(a + y)$, then $\frac{dy}{dx} =$

- (1) $\frac{\cos^2(a + y)}{\sin a}$
- (2) $\frac{\sin^2(a + y)}{\sin a}$
- (3) $\frac{\cos^2(a + y)}{\cos a}$
- (4) $\frac{\sin^2(a + y)}{\cos a}$

Options :

- 212807112745. 1
- 212807112746. 2
- 212807112747. 3
- 212807112748. 4

Question Number : 27 Question Id : 21280728187 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ2

यदि $\cos y = x \cos(a + y)$, तब $\frac{dy}{dx} =$

- (1) $\frac{\cos^2(a + y)}{\sin a}$
- (2) $\frac{\sin^2(a + y)}{\sin a}$
- (3) $\frac{\cos^2(a + y)}{\cos a}$
- (4) $\frac{\sin^2(a + y)}{\cos a}$

Options :

- 212807112745. 1
- 212807112746. 2
- 212807112747. 3
- 212807112748. 4

Question Number : 28 Question Id : 21280728188 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	MCQ2

The value of C which satisfies Rolle’s Theorem for $f(x) = \sin^4x + \cos^4x$ in $\left[0, \frac{\pi}{2}\right]$. Then C is :

- (1) $\frac{\pi}{5}$
- (2) $\frac{\pi}{3}$
- (3) $\frac{\pi}{4}$
- (4) $\frac{\pi}{6}$

Options :

- 212807112749. 1
- 212807112750. 2
- 212807112751. 3
- 212807112752. 4

Question Number : 28 Question Id : 21280728188 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	MCQ2

C का वह मान, जो अन्तराल $\left[0, \frac{\pi}{2}\right]$ में फलन $f(x) = \sin^4 x + \cos^4 x$ के लिये रोले प्रमेय को सत्यापित करता है तब C है :

- (1) $\frac{\pi}{5}$
- (2) $\frac{\pi}{3}$
- (3) $\frac{\pi}{4}$
- (4) $\frac{\pi}{6}$

Options :

- 212807112749. 1
- 212807112750. 2
- 212807112751. 3
- 212807112752. 4

Question Number : 29 Question Id : 21280728189 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ2

Angle between tangents to the curve $y = x^2 - 5x + 6$ at the points (2, 0) and (3, 0) is :

- (1) 0°
- (2) 45°
- (3) 60°
- (4) 90°

Options :

- 212807112753. 1
- 212807112754. 2
- 212807112755. 3
- 212807112756. 4

Question Number : 29 Question Id : 21280728189 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ2

वक्र $y = x^2 - 5x + 6$ के बिन्दुओं (2, 0) तथा (3, 0) पर स्पर्श रेखाओं के बीच का कोण है :

- (1) 0°
- (2) 45°
- (3) 60°
- (4) 90°

Options :

- 212807112753. 1

212807112754. 2
212807112755. 3
212807112756. 4

Question Number : 30 Question Id : 21280728190 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	MCQ2

The rate of change of the area of a circular disc with respect to its circumference when radius is 3 is :

- (1) 6 unit
- (2) 3 unit
- (3) 6π unit
- (4) 2π unit

Options :
212807112757. 1
212807112758. 2
212807112759. 3
212807112760. 4

Question Number : 30 Question Id : 21280728190 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	MCQ2

एक वृत्तीय डिस्क के क्षेत्रफल में परिधि के सापेक्ष परिवर्तन की दर है जबकि त्रिज्या 3 है :

- (1) 6 इकाई
- (2) 3 इकाई
- (3) 6π इकाई
- (4) 2π इकाई

Options :
212807112757. 1
212807112758. 2
212807112759. 3
212807112760. 4

Question Number : 31 Question Id : 21280728191 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	MCQ2

The interval in which the $f(x) = \sin x - \cos x$, $0 \leq x \leq 2\pi$ is strictly decreasing is :

- (1) $\left(\frac{\pi}{4}, \frac{5\pi}{4}\right)$
- (2) $\left(0, \frac{\pi}{4}\right) \cup \left(\frac{5\pi}{4}, 2\pi\right)$
- (3) $\left(\frac{3\pi}{4}, \frac{7\pi}{4}\right)$
- (4) $\left(0, \frac{3\pi}{4}\right) \cup \left(\frac{7\pi}{4}, 2\pi\right)$

Options :

212807112761. 1
212807112762. 2
212807112763. 3
212807112764. 4

Question Number : 31 Question Id : 21280728191 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ2

वह अंतराल जिसमें फलन $f(x) = \sin x - \cos x$, $0 \leq x \leq 2\pi$ निरन्तर ह्रासमान है :

- (1) $\left(\frac{\pi}{4}, \frac{5\pi}{4}\right)$
- (2) $\left(0, \frac{\pi}{4}\right) \cup \left(\frac{5\pi}{4}, 2\pi\right)$
- (3) $\left(\frac{3\pi}{4}, \frac{7\pi}{4}\right)$
- (4) $\left(0, \frac{3\pi}{4}\right) \cup \left(\frac{7\pi}{4}, 2\pi\right)$

Options :

212807112761. 1
212807112762. 2
212807112763. 3
212807112764. 4

Question Number : 32 Question Id : 21280728192 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ2

The value of $\int_0^3 |2x - 6| \, dx$ is :

- (1) $-\frac{9}{4}$
- (2) $\frac{19}{2}$
- (3) 9
- (4) -3

Options :

- 212807112765. 1
- 212807112766. 2
- 212807112767. 3
- 212807112768. 4

Question Number : 32 Question Id : 21280728192 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ2

$\int_0^3 |2x - 6| \, dx$ का मान है :

- (1) $-\frac{9}{4}$
- (2) $\frac{19}{2}$
- (3) 9
- (4) -3

Options :

- 212807112765. 1
- 212807112766. 2
- 212807112767. 3
- 212807112768. 4

Question Number : 33 Question Id : 21280728193 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ2

The integral $\int \frac{dx}{x^2(x^4 + 1)^{\frac{3}{4}}}$ equals _____.

- (1) $\left(\frac{x^4 + 1}{x^4}\right)^{\frac{1}{4}} + C$
- (2) $(x^4 + 1)^{\frac{1}{4}} + C$
- (3) $-(x^4 + 1)^{\frac{1}{4}} + C$
- (4) $-\left(\frac{x^4 + 1}{x^4}\right)^{\frac{1}{4}} + C$

Options :

212807112769. 1
212807112770. 2
212807112771. 3
212807112772. 4

Question Number : 33 Question Id : 21280728193 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	MCQ2

समाकलन $\int \frac{dx}{x^2(x^4 + 1)^{\frac{3}{4}}}$ बराबर है : _____.

- (1) $\left(\frac{x^4 + 1}{x^4}\right)^{\frac{1}{4}} + C$
- (2) $(x^4 + 1)^{\frac{1}{4}} + C$
- (3) $-(x^4 + 1)^{\frac{1}{4}} + C$
- (4) $-\left(\frac{x^4 + 1}{x^4}\right)^{\frac{1}{4}} + C$

Options :

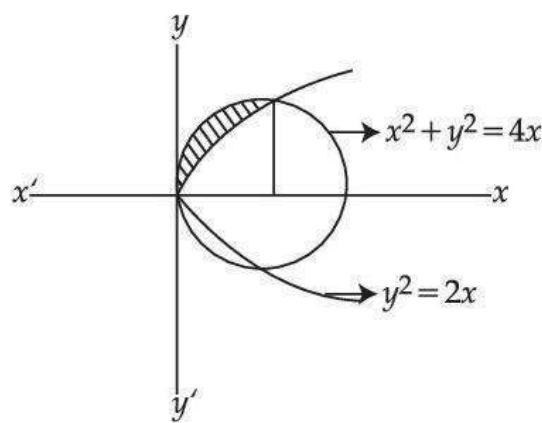
212807112769. 1
212807112770. 2
212807112771. 3

Question Number : 34 Question Id : 21280728194 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ2

The area of the shaded portion



is :

- (1) $\left(\pi - \frac{8}{3}\right)$ sq. units
- (2) $\left(\frac{8}{3} + \pi\right)$ sq. units
- (3) $\left(\frac{\pi}{2} - \frac{4}{3}\right)$ sq. units
- (4) $\left(\frac{\pi}{2} + \frac{4}{3}\right)$ sq. units

Options :

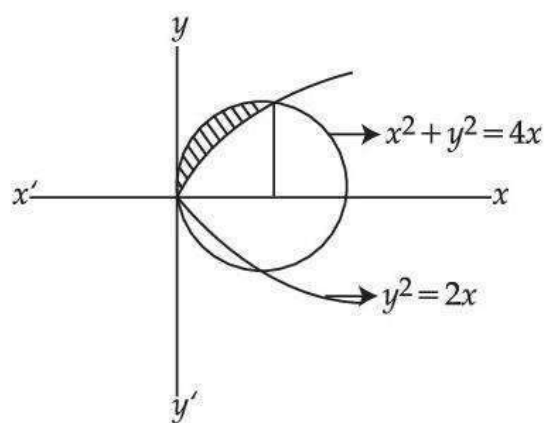
- 212807112773. 1
- 212807112774. 2
- 212807112775. 3
- 212807112776. 4

Question Number : 34 Question Id : 21280728194 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ2

छायांकित भाग का क्षेत्रफल है :



- (1) $\left(\pi - \frac{8}{3}\right)$ वर्ग एकक
- (2) $\left(\frac{8}{3} + \pi\right)$ वर्ग एकक
- (3) $\left(\frac{\pi}{2} - \frac{4}{3}\right)$ वर्ग एकक
- (4) $\left(\frac{\pi}{2} + \frac{4}{3}\right)$ वर्ग एकक

Options :

- 212807112773. 1
- 212807112774. 2
- 212807112775. 3
- 212807112776. 4

Question Number : 35 Question Id : 21280728195 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ2

Area of the region bounded by $y = -1$, $y = 2$, $x = y^3$ and $x = 0$ is :

- (1) $\frac{13}{4}$ sq. units
- (2) $\frac{15}{4}$ sq. units
- (3) $\frac{17}{4}$ sq. units
- (4) $\frac{19}{4}$ sq. units

Options :

- 212807112777. 1
- 212807112778. 2

212807112779. 3
212807112780. 4

Question Number : 35 Question Id : 21280728195 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	MCQ2

$y = -1, y = 2, x = y^3$ तथा $x = 0$ द्वारा घिरे क्षेत्र का क्षेत्रफल है :

- (1) $\frac{13}{4}$ वर्ग एकक
- (2) $\frac{15}{4}$ वर्ग एकक
- (3) $\frac{17}{4}$ वर्ग एकक
- (4) $\frac{19}{4}$ वर्ग एकक

Options :
212807112777. 1
212807112778. 2
212807112779. 3
212807112780. 4

Question Number : 36 Question Id : 21280728196 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	MCQ2

The differential equation whose solution is $Ax^2 + By^2 = 1$ where A and B are arbitrary constant is of :

- (A) first order and first degree
- (B) second order and first degree
- (C) second order and second degree
- (D) second order

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

- (1) (D) Only
- (2) (C) and (D) Only
- (3) (B) and (D) Only
- (4) (A) Only

Options :
212807112781. 1
212807112782. 2
212807112783. 3
212807112784. 4

Question Number : 36 Question Id : 21280728196 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	MCQ2

वह अवकल समीकरण जिसका हल $Ax^2 + By^2 = 1$ है जहाँ A तथा B स्वेच्छ अचर है, होगा :

- (A) प्रथम कोटि तथा प्रथम घात का
- (B) द्वितीय कोटि तथा प्रथम घात का
- (C) द्वितीय कोटि तथा द्वितीय घात का
- (D) द्वितीय कोटि

नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए।

- (1) केवल (D)
- (2) केवल (C) और (D)
- (3) केवल (B) और (D)
- (4) केवल (A)

Options :
212807112781. 1
212807112782. 2
212807112783. 3
212807112784. 4

Question Number : 37 Question Id : 21280728197 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	MCQ2

Integrating factor of the differential equation $(1 - y^2) \frac{dx}{dy} + xy = ay$ is :

- (1) $\frac{1}{1 - y^2}$
- (2) $\frac{1}{\sqrt{y^2 - 1}}$
- (3) $\frac{1}{y^2 - 1}$
- (4) $\frac{1}{\sqrt{1 - y^2}}$

Options :
212807112785. 1
212807112786. 2
212807112787. 3

212807112788. 4

Question Number : 37 Question Id : 21280728197 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ2

अवकल समीकरण $(1 - y^2)\frac{dx}{dy} + xy = ay$ का समाकल गुणक है :

- (1) $\frac{1}{1 - y^2}$
- (2) $\frac{1}{\sqrt{y^2 - 1}}$
- (3) $\frac{1}{y^2 - 1}$
- (4) $\frac{1}{\sqrt{1 - y^2}}$

Options :

212807112785. 1
212807112786. 2
212807112787. 3
212807112788. 4

Question Number : 38 Question Id : 21280728198 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ2

Let $\vec{a} = 4\hat{i} - \hat{j} + 3\hat{k}$ and $\vec{b} = -2\hat{i} + \hat{j} - 2\hat{k}$. Then

- (A) $\vec{a}$ is a unit vector
- (B) $\vec{a} \times \vec{b} = -\hat{i} + 2\hat{j} + 2\hat{k}$
- (C) $\vec{a}$ and $\vec{b}$ are parallel vectors
- (D) $\vec{a}$ and $\vec{b}$ are neither parallel nor perpendicular vectors

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

- (1) (B) and (C) Only
- (2) (C) and (D) Only
- (3) (D) Only
- (4) (B) and (D) Only

Options :

- 212807112789. 1
- 212807112790. 2
- 212807112791. 3
- 212807112792. 4

Question Number : 38 Question Id : 21280728198 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
 Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
 Correct Marks : 5 Wrong Marks : 1
 Question Key Details :

Key	Value
Comprehension	MCQ2

माना $\vec{a} = 4\hat{i} - \hat{j} + 3\hat{k}$ तथा $\vec{b} = -2\hat{i} + \hat{j} - 2\hat{k}$ तब :

- (A) $\vec{a}$ एक इकाई सदिश है।
- (B) $\vec{a} \times \vec{b} = -\hat{i} + 2\hat{j} + 2\hat{k}$
- (C) $\vec{a}$ तथा $\vec{b}$ समान्तर सदिश है।
- (D) $\vec{a}$ तथा $\vec{b}$ न ही समान्तर है न ही लम्बवत् है।

नीच दिए गए विकल्पों में से **सही** उत्तर का चयन कीजिए।

- (1) केवल (B) तथा (C)
- (2) केवल (C) तथा (D)
- (3) केवल (D)
- (4) केवल (B) तथा (D)

Options :

- 212807112789. 1

212807112790. 2
212807112791. 3
212807112792. 4

Question Number : 39 Question Id : 21280728199 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ2

Let $\vec{a}$ and $\vec{b}$ be two unit vectors. If the vectors $\vec{c} = 5\vec{a} - 4\vec{b}$ and $\vec{d} = \vec{a} + 2\vec{b}$ are perpendicular to each other, then the angle between $\vec{a}$ and $\vec{b}$ is :

- (1) 0
- (2) $\frac{\pi}{3}$
- (3) $\frac{\pi}{4}$
- (4) $\frac{\pi}{6}$

Options :

212807112793. 1
212807112794. 2
212807112795. 3
212807112796. 4

Question Number : 39 Question Id : 21280728199 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ2

माना $\vec{a}$ तथा $\vec{b}$ दो इकाई सदिश हैं। यदि $\vec{c} = 5\vec{a} - 4\vec{b}$ तथा $\vec{d} = \vec{a} + 2\vec{b}$ एक दूसरे के लम्बवत् है तब $\vec{a}$ तथा $\vec{b}$ के बीच का कोन है :

- (1) 0
- (2) $\frac{\pi}{3}$
- (3) $\frac{\pi}{4}$
- (4) $\frac{\pi}{6}$

Options :

212807112793. 1
212807112794. 2
212807112795. 3
212807112796. 4

Question Number : 40 Question Id : 21280728200 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ2

The equation of plane which cuts equal intercepts of unit length on the coordinate axes is :

- (1) $x + y + z = 3$
- (2) $x + y - z = 1$
- (3) $x + y + z = 1$
- (4) $x + y + z = 0$

Options :

212807112797. 1
212807112798. 2
212807112799. 3
212807112800. 4

Question Number : 40 Question Id : 21280728200 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ2

उस समतल का समीकरण जो निर्देशांक अक्षों से इकाई लम्बाई के समान अन्त खण्ड काटता है/हैं होगा :

- (1) $x + y + z = 3$
- (2) $x + y - z = 1$
- (3) $x + y + z = 1$
- (4) $x + y + z = 0$

Options :

212807112797. 1
212807112798. 2
212807112799. 3
212807112800. 4

Question Number : 41 Question Id : 21280728201 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ2

If the straight lines $x = 1 + s$, $y = -3 - \lambda s$, $z = 1 + \lambda s$ and $x = \frac{t}{2}$, $y = 1 + t$, $z = 2 - t$ with parameters s and t respectively, are coplanar, then λ is equal to :

- (1) 3
- (2) -2
- (3) -1
- (4) 5

Options :

212807112801. 1
212807112802. 2

212807112803. 3
212807112804. 4

Question Number : 41 Question Id : 21280728201 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	MCQ2

यदि रेखाएँ $x = 1 + s, y = -3 - \lambda s, z = 1 + \lambda s$ तथा $x = \frac{t}{2}, y = 1 + t, z = 2 - t$ जहाँ s तथा t प्राचल है, समतलीय है तब λ बराबर है :

- (1) 3
- (2) -2
- (3) -1
- (4) 5

Options :
212807112801. 1
212807112802. 2
212807112803. 3
212807112804. 4

Question Number : 42 Question Id : 21280728202 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	MCQ2

Match List - I with List - II.

List - I

- (A) The common region determined by all the constraints of LPP is called
- (B) Minimize $z = c_1x_1 + c_2x_2 + + c_nx_n$ is
- (C) A solution that also satisfies the non-negative restrictions of a LPP is called
- (D) The set of all feasible solutions of a LPP is a

List - II

- (I) objective function
- (II) convex set
- (III) feasible region
- (IV) feasible solution

Choose the correct answer from the options given below :

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

Options :
212807112805. 1
212807112806. 2
212807112807. 3
212807112808. 4

Question Number : 42 Question Id : 21280728202 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ2

सूची - I तथा सूची - II को सुमेलित करें -

सूची - I

सूची - II

- (A) LPP के सभी व्यवरोधों से निर्मित उभयनिष्ठ क्षेत्र कहलाता है।

(B) न्यूनतम $z = c_1x_1 + c_2x_2 + + c_nx_n$ है।

(C) LPP के ऋणोत्तर अवरोधों को भी संतुष्ट करने वाला हल कहलाता है।

(D) LPP के सभी सुसंगत हलों का समुच्चय है।
- (I) उद्देश्य फलन

(II) अवमुख समुच्चय

(III) सुसंगत क्षेत्र

(IV) सुसंगत हल

नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए।

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

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

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

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

Options :

212807112805. 1

212807112806. 2

212807112807. 3

212807112808. 4

Question Number : 43 Question Id : 21280728203 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ2

If corner points of a feasible region are $(0, 0)$, $(2, 0)$ $\left(\frac{20}{19}, \frac{45}{19}\right)$ and $(0, 3)$, then

- (A) Maximum value of $z = 5x + 3y$ is 10

(B) Minimum value of $z = 5x + 3y$ is 0

(C) Maximum value of $z = 5x + 3y$ is $\frac{235}{19}$ and minimum value is 0

(D) Maximum value of $z = 5x + 3y$ is 10 and minimum value is 0

Choose the correct answer from the options given below :

- (1) (A) and (D) Only

(2) (B) and (D) Only

(3) (B) and (C) Only

(4) (A), (B) and (D) Only

Options :

212807112809. 1

212807112810. 2

212807112811. 3

212807112812. 4

Question Number : 43 Question Id : 21280728203 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	MCQ2

यदि सुसंगत क्षेत्र के कोनीय बिन्दु $(0, 0), (2, 0) \left(\frac{20}{19}, \frac{45}{19}\right)$ तथा $(0, 3)$ है, तब :

- (A) $z = 5x + 3y$ का अधिकतम मान 10 है।
- (B) $z = 5x + 3y$ का न्यूनतम मान 0 है।
- (C) $z = 5x + 3y$ का अधिकतम मान $\frac{235}{19}$ तथा न्यूनतम मान 0 है।
- (D) $z = 5x + 3y$ का अधिकतम मान 10 तथा न्यूनतम मान 0 है।

नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए।

- (1) केवल (A) तथा (D)
- (2) केवल (B) तथा (D)
- (3) केवल (B) तथा (C)
- (4) केवल (A), (B) तथा (D)

Options :
212807112809. 1
212807112810. 2
212807112811. 3
212807112812. 4

Question Number : 44 Question Id : 21280728204 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	MCQ2

If in a binomial distribution $n = 4$, $P(X = 0) = \frac{16}{81}$, then $P(X = 4)$ equals :

- (1) $\frac{1}{16}$
- (2) $\frac{1}{81}$
- (3) $\frac{1}{27}$
- (4) $\frac{1}{8}$

Options :
212807112813. 1

212807112814. 2
212807112815. 3
212807112816. 4

Question Number : 44 Question Id : 21280728204 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	MCQ2

यदि किसी द्विपद बंटन में $n=4$, $P(X=0) = \frac{16}{81}$, तब $P(X=4)$ बराबर है :

- (1) $\frac{1}{16}$
- (2) $\frac{1}{81}$
- (3) $\frac{1}{27}$
- (4) $\frac{1}{8}$

Options :
212807112813. 1
212807112814. 2
212807112815. 3
212807112816. 4

Question Number : 45 Question Id : 21280728205 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	MCQ2

A and B throw a die alternatively till one of them gets a number more than 4 and wins the game. Then the probability of winning the game by B, if A starts first :

- (1) $\frac{2}{5}$
- (2) $\frac{3}{5}$
- (3) $\frac{1}{5}$
- (4) $\frac{4}{5}$

Options :
212807112817. 1
212807112818. 2
212807112819. 3
212807112820. 4

Question Number : 45 Question Id : 21280728205 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	MCQ2

A तथा B बारी-बारी से एक पासे को उछालते हैं जब तक कि उनमें से कोई एक पासे पर 4 से अधिक प्राप्त कर खेल को जीत लेता है। यदि A खेल को प्रारम्भ करें तो B के खेल को जीतने की प्रायिकता है :

- (1) $\frac{2}{5}$
- (2) $\frac{3}{5}$
- (3) $\frac{1}{5}$
- (4) $\frac{4}{5}$

Options :
212807112817. 1
212807112818. 2
212807112819. 3
212807112820. 4
Sub-Section Number : 2
Sub-Section Id : 2128072060
Question Shuffling Allowed : No
Is Section Default? : null

Question Number : 46 Question Id : 21280728206 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	Compl

The inverse of the function $f : \mathbf{R} \rightarrow \mathbf{R}$ given by $f(x) = 2x + 7$ is :

- (1) $2(x + 7)$
- (2) $\frac{x + 7}{2}$
- (3) $x - 7$
- (4) $\frac{x - 7}{2}$

Options :
212807112821. 1
212807112822. 2
212807112823. 3
212807112824. 4

Question Number : 46 Question Id : 21280728206 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	Comp1

फलन $f: \mathbf{R} \rightarrow \mathbf{R}$ जहाँ $f(x) = 2x + 7$ से परिभाषित है का प्रतिलोम है :

- (1) $2(x + 7)$
- (2) $\frac{x + 7}{2}$
- (3) $x - 7$
- (4) $\frac{x - 7}{2}$

Options :

212807112821. 1
212807112822. 2
212807112823. 3
212807112824. 4

Question Number : 47 Question Id : 21280728207 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
 Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
 Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	Comp1

If $f(x) = \begin{cases} \frac{x^2 - 9}{x - 3}, & x \neq 3 \\ 5, & x = 3 \end{cases}$ then $f(x)$:

- (1) is continuous at $x = 3$
- (2) has removable discontinuity at $x = 3$
- (3) has irremovable discontinuity at $x = 3$
- (4) continuous at every real number

Options :

212807112825. 1
212807112826. 2
212807112827. 3
212807112828. 4

Question Number : 47 Question Id : 21280728207 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
 Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
 Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	Comp1

यदि $f(x) = \begin{cases} \frac{x^2 - 9}{x - 3}, & x \neq 3 \\ 5, & x = 3 \end{cases}$ तब $f(x)$:

- (1) $x = 3$ पर संतत है।
- (2) $x = 3$ पर अपनेय असंतत है।
- (3) $x = 3$ पर अनपनेय असंतत है।
- (4) प्रत्येक वास्तविक संख्या पर संतत है।

Options :

- 212807112825. 1
- 212807112826. 2
- 212807112827. 3
- 212807112828. 4

Question Number : 48 Question Id : 21280728208 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	Comp1

The integral $\int_0^1 x(1 - x)^n \, dx$ is equal to :

- (1) $\frac{1}{(n + 2)(n + 3)}$
- (2) $\frac{1}{(n + 1)(n + 2)}$
- (3) $\frac{1}{n(n + 1)}$
- (4) $\frac{1}{(n - 1)(n - 2)}$

Options :

- 212807112829. 1
- 212807112830. 2
- 212807112831. 3
- 212807112832. 4

Question Number : 48 Question Id : 21280728208 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	Comp1

समाकलन $\int_0^1 x(1-x)^n \, dx$ बराबर है :

- (1) $\frac{1}{(n+2)(n+3)}$
- (2) $\frac{1}{(n+1)(n+2)}$
- (3) $\frac{1}{n(n+1)}$
- (4) $\frac{1}{(n-1)(n-2)}$

Options :

- 212807112829. 1
- 212807112830. 2
- 212807112831. 3
- 212807112832. 4

Question Number : 49 Question Id : 21280728209 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	Compl

The set of value of x for which the angle between the $\vec{a} = 2x^2 \hat{i} + 4x \hat{j} + \hat{k}$ and $\vec{b} = 7 \hat{i} - 2 \hat{j} + x \hat{k}$ is obtuse is :

- (1) $\left(0, \frac{1}{2}\right)$
- (2) $\left(0, \frac{1}{3}\right)$
- (3) $\left(\frac{1}{2}, \frac{1}{3}\right)$
- (4) $(0, 1)$

Options :

- 212807112833. 1
- 212807112834. 2
- 212807112835. 3
- 212807112836. 4

Question Number : 49 Question Id : 21280728209 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	Compl

x के वह मानों का समुच्चय जिनके लिये $\vec{a} = 2x^2 \hat{i} + 4x \hat{j} + \hat{k}$ तथा $\vec{b} = 7\hat{i} - 2\hat{j} + x\hat{k}$ के बीच का कोन अधिक कोन है, होगा :

- (1) $\left(0, \frac{1}{2}\right)$
- (2) $\left(0, \frac{1}{3}\right)$
- (3) $\left(\frac{1}{2}, \frac{1}{3}\right)$
- (4) $(0, 1)$

Options :

212807112833. 1
212807112834. 2
212807112835. 3
212807112836. 4

Question Number : 50 Question Id : 21280728210 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
 Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
 Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	Comp1

The shortest distance between the lines $\frac{x+3}{1} = \frac{y-2}{2} = \frac{z+4}{3}$ and $\frac{x+3}{-3} = \frac{y+7}{2} = \frac{z-6}{4}$ is :

- (1) $\frac{197}{\sqrt{179}}$
- (2) $\frac{197}{\sqrt{191}}$
- (3) $\frac{197}{\sqrt{189}}$
- (4) $\frac{197}{\sqrt{237}}$

Options :

212807112837. 1
212807112838. 2
212807112839. 3
212807112840. 4

Question Number : 50 Question Id : 21280728210 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
 Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
 Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	Comp1

रेखाओं $\frac{x+3}{1} = \frac{y-2}{2} = \frac{z+4}{3}$ तथा $\frac{x+3}{-3} = \frac{y+7}{2} = \frac{z-6}{4}$ के बीच की न्यूनतम दूरी है :

- (1) $\frac{197}{\sqrt{179}}$
- (2) $\frac{197}{\sqrt{191}}$
- (3) $\frac{197}{\sqrt{189}}$
- (4) $\frac{197}{\sqrt{237}}$

Options :

- 212807112837. 1
- 212807112838. 2
- 212807112839. 3
- 212807112840. 4

Applied Mathematics

Section Id :	212807719
Section Number :	3
Section type :	Online
Mandatory or Optional :	Optional
Number of Questions :	35
Number of Questions to be attempted :	25
Section Marks :	125
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	2128072061
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 51 Question Id : 21280728211 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ3

If x is the least positive integer satisfying $100 \equiv x \pmod{6}$, then $(2x + 1)$ is equal to :

- (1) 7
- (2) 5
- (3) 9
- (4) 11

Options :

- 212807112841. 1
- 212807112842. 2
- 212807112843. 3
- 212807112844. 4

Question Number : 51 Question Id : 21280728211 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ3

यदि x न्यूनतम धनात्मक पूर्णांक है जो $100 \equiv x \pmod{6}$ को संतुष्ट करता है तब $(2x+1)$ बराबर है :

- (1) 7
- (2) 5
- (3) 9
- (4) 11

Options :

- 212807112841. 1
- 212807112842. 2
- 212807112843. 3
- 212807112844. 4

Question Number : 52 Question Id : 21280728212 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ3

The quantity of water that must be added to 36 litres of milk at $2\frac{1}{2}$ litres for ₹ 120 so as to have mixture worth ₹ 36 for a litre is :

- (1) 12 litres
- (2) 10 litres
- (3) 15 litres
- (4) 20 litres

Options :

- 212807112845. 1
- 212807112846. 2
- 212807112847. 3
- 212807112848. 4

Question Number : 52 Question Id : 21280728212 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ3

यदि $2\frac{1}{2}$ लीटर दूध का मूल्य ₹ 120 है तो 36 लिटर दूध में पानी की मात्रा कितनी मिलायी जाए कि मिश्रण का मूल्य ₹ 36 प्रति लीटर हो जाये :

- (1) 12 लीटर
- (2) 10 लीटर
- (3) 15 लीटर
- (4) 20 लीटर

Options :

- 212807112845. 1
- 212807112846. 2
- 212807112847. 3
- 212807112848. 4

Question Number : 53 Question Id : 21280728213 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ3

A motor boat covers 16 km in 2 hours downstream and 14 km in 2 hours upstream. The speed of the motor boat is :

- (1) 0.5 km/hr
- (2) 5 km/hr
- (3) 8 km/hr
- (4) 7.5 km/hr

Options :

- 212807112849. 1
- 212807112850. 2
- 212807112851. 3
- 212807112852. 4

Question Number : 53 Question Id : 21280728213 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ3

एक मोटर नाव अनुप्रवाह में 2 घण्टो में 16 किमी. दूरी तय करती है तथा उर्ध्वप्रवाह में 2 घण्टों में 14 किमी. दूरी तय करती है तब मोटर नाव की चाल है :

- (1) 0.5 किमी./घण्टा
- (2) 5 किमी./घण्टा
- (3) 8 किमी./घण्टा
- (4) 7.5 किमी./घण्टा

Options :

- 212807112849. 1
- 212807112850. 2
- 212807112851. 3

212807112852. 4

Question Number : 54 Question Id : 21280728214 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ3

Two pipes A and B can fill a cistern in 15 minutes and 30 minutes respectively. Both pipes are opened together, but after 5 minute pipe B is turned off. The cistern will be full in total :

- (1) 10 minutes
- (2) 7.5 minutes
- (2) 15 minutes
- (4) 12.5 minutes

Options :

- 212807112853. 1
- 212807112854. 2
- 212807112855. 3
- 212807112856. 4

Question Number : 54 Question Id : 21280728214 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ3

दो पाईप A तथा B एक हौद को क्रमशः 15 मिनटों तथा 30 मिनटों में भर देते हैं। यदि दोनों पाइपों को एक साथ खोला जाए किन्तु 5 मिनट बाद पाईप B को बन्द कर दिया जाता है। तब हौद को पूरा भरने में लगा समय है :

- (1) 10 मिनट
- (2) 7.5 मिनट
- (2) 15 मिनट
- (4) 12.5 मिनट

Options :

- 212807112853. 1
- 212807112854. 2
- 212807112855. 3
- 212807112856. 4

Question Number : 55 Question Id : 21280728215 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ3

In a partnership, A invests one-fourth of the capital for one-third of the time, B invests one-third of the capital for one-fourth of the time and C invests the rest of the capital for the whole time. Out of a profit of ₹ 3,500, A's share is :

- (1) ₹ 1,000
- (2) ₹ 1,500
- (3) ₹ 500
- (4) ₹ 2,500

Options :

- 212807112857. 1
- 212807112858. 2
- 212807112859. 3
- 212807112860. 4

Question Number : 55 Question Id : 21280728215 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ3

एक भागीदारी में, A कुल पूँजी का एक चौथाई, कुल समय से एक तिहाई समय के लिये निवेश करता है। B कुल पूँजी का एक तिहाई कुल समय के एक चौथाई समय के लिये निवेश करता है तथा C कुल पूँजी का शेष पूरे समय के लिये निवेश करता है। ₹ 3,500 के लाभ में, A का हिस्सा है :

- (1) ₹ 1,000
- (2) ₹ 1,500
- (3) ₹ 500
- (4) ₹ 2,500

Options :

- 212807112857. 1
- 212807112858. 2
- 212807112859. 3
- 212807112860. 4

Question Number : 56 Question Id : 21280728216 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ3

Match List - I with List - II.

List - I	List - II
(A) The solution set of the inequality $-5x > 3, x \in \mathbb{R}$, is	(I) $\left[\frac{20}{7}, \infty\right)$
(B) The solution set of the inequality is, $\frac{-7x}{4} \leq -5, x \in \mathbb{R}$ is,	(II) $\left[\frac{4}{7}, \infty\right)$
(C) The solution set of the inequality $7x - 4 \geq 0, x \in \mathbb{R}$ is,	(III) $\left(-\infty, \frac{7}{5}\right)$
(D) The solution set of the inequality $9x - 4 < 4x + 3, x \in \mathbb{R}$ is,	(IV) $\left(-\infty, -\frac{3}{5}\right)$

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

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

Options :

- 212807112861. 1
- 212807112862. 2
- 212807112863. 3
- 212807112864. 4

Question Number : 56 Question Id : 21280728216 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	MCQ3

सूची - I तथा सूची - II को सुमेलित करें।

सूची - I	सूची - II
(A) असमता $-5x > 3, x \in \mathbb{R}$ का हल समुच्चय है	(I) $\left[\frac{20}{7}, \infty\right)$
(B) असमता $\frac{-7x}{4} \leq -5, x \in \mathbb{R}$ का हल समुच्चय है	(II) $\left[\frac{4}{7}, \infty\right)$
(C) असमता $7x - 4 \geq 0, x \in \mathbb{R}$ का हल समुच्चय है	(III) $\left(-\infty, \frac{7}{5}\right)$
(D) असमता $9x - 4 < 4x + 3, x \in \mathbb{R}$ का हल समुच्चय है	(IV) $\left(-\infty, -\frac{3}{5}\right)$

नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए।

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

Options :

- 212807112861. 1
- 212807112862. 2
- 212807112863. 3
- 212807112864. 4

Question Number : 57 Question Id : 21280728217 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	MCQ3

If $\begin{bmatrix} 3 & 2x + 5y & -2 \\ x + 4y & 7 & -5 \end{bmatrix} = \begin{bmatrix} 3 & 10 & -2 \\ 2 & 7 & -5 \end{bmatrix}$ Then the values of x and y are :

- (1) $x = -2, y = 6$
- (2) $x = 12, y = 5$
- (3) $x = -4, y = 7$
- (4) $x = 10, y = -2$

Options :

- 212807112865. 1
- 212807112866. 2
- 212807112867. 3
- 212807112868. 4

Question Number : 57 Question Id : 21280728217 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
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Comprehension	MCQ3
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यदि $\begin{bmatrix} 3 & 2x + 5y & -2 \\ x + 4y & 7 & -5 \end{bmatrix} = \begin{bmatrix} 3 & 10 & -2 \\ 2 & 7 & -5 \end{bmatrix}$, तब x तथा y के मान हैं :

- (1) $x = -2, y = 6$
- (2) $x = 12, y = 5$
- (3) $x = -4, y = 7$
- (4) $x = 10, y = -2$

Options :

- 212807112865. 1
- 212807112866. 2
- 212807112867. 3
- 212807112868. 4

Question Number : 58 Question Id : 21280728218 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ3

If A is a square matrix of order 3 and $|A|=5$, then $|\text{adj}(\text{adj}A)|$ is :

- (1) 125
- (2) 625
- (3) 75
- (4) 375

Options :

- 212807112869. 1
- 212807112870. 2
- 212807112871. 3
- 212807112872. 4

Question Number : 58 Question Id : 21280728218 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ3

यदि A, 3 कोटि का वर्ग आव्यूह है तथा $|A|=5$ तब $|\text{adj}(\text{adj}A)|$ है :

- (1) 125
- (2) 625
- (3) 75
- (4) 375

Options :

- 212807112869. 1
- 212807112870. 2
- 212807112871. 3
- 212807112872. 4

Question Number : 59 Question Id : 21280728219 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ3

If the matrix $A = \begin{bmatrix} x & -2 & -5y \\ 2 & 0 & -9 \\ 10 & 3z & 0 \end{bmatrix}$ is skew-symmetric, then the value of $(2x - 3y + 4z)$ is :

- (1) 5
- (2) 6
- (3) 0
- (4) -2

Options :

- 212807112873. 1
- 212807112874. 2
- 212807112875. 3
- 212807112876. 4

Question Number : 59 Question Id : 21280728219 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ3

यदि आव्यूह $A = \begin{bmatrix} x & -2 & -5y \\ 2 & 0 & -9 \\ 10 & 3z & 0 \end{bmatrix}$ एक विषम सममित आव्यूह है तब $(2x - 3y + 4z)$ का मान है :

- (1) 5
- (2) 6
- (3) 0
- (4) -2

Options :

- 212807112873. 1
- 212807112874. 2
- 212807112875. 3
- 212807112876. 4

Question Number : 60 Question Id : 21280728220 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ3

If $y = \log\left(\frac{x^5}{e^5}\right)$, then $\frac{d^2y}{dx^2}$ is,

- (1) $\frac{-5}{x^2}$
- (2) $\frac{-20}{x^4}$
- (3) $\frac{x^3}{e^2}$
- (4) $\frac{-20x^3}{e^2}$

Options :

212807112877. 1
212807112878. 2
212807112879. 3
212807112880. 4

Question Number : 60 Question Id : 21280728220 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ3

यदि $y = \log\left(\frac{x^5}{e^5}\right)$, तब $\frac{d^2y}{dx^2}$ है :

- (1) $\frac{-5}{x^2}$
- (2) $\frac{-20}{x^4}$
- (3) $\frac{x^3}{e^2}$
- (4) $\frac{-20x^3}{e^2}$

Options :

212807112877. 1
212807112878. 2
212807112879. 3
212807112880. 4

Question Number : 61 Question Id : 21280728221 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ3

The point on the curve $y^2=16x$ for which the y -coordinate is changing 2 times as fast as the x -coordinate is :

- (1) (2, 4)
- (2) (3, 2)
- (3) (1, 4)
- (4) (2, 3)

Options :

- 212807112881. 1
- 212807112882. 2
- 212807112883. 3
- 212807112884. 4

Question Number : 61 Question Id : 21280728221 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ3

वक्र $y^2=16x$ पर वह बिन्दु जिसका y निर्देशांक, x निर्देशांक की तुलना में 2 गुना तेजी से बदल रहा है _____।

- (1) (2, 4)
- (2) (3, 2)
- (3) (1, 4)
- (4) (2, 3)

Options :

- 212807112881. 1
- 212807112882. 2
- 212807112883. 3
- 212807112884. 4

Question Number : 62 Question Id : 21280728222 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ3

The total cost function for x units of a commodity is given by $C(x) = \frac{25x^3}{3} - 75x^2 + 48x + 34$. The output x at which the marginal cost is minimum is :

- (1) 6
- (2) 3
- (3) 10
- (4) 5

Options :

- 212807112885. 1
- 212807112886. 2
- 212807112887. 3
- 212807112888. 4

Question Number : 62 Question Id : 21280728222 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	MCQ3

एक वस्तु की x इकाइयों के उत्पादन का कुल लागत फलन $C(x) = \frac{25x^3}{3} - 75x^2 + 48x + 34$ है तब इकाइयों x की वह संख्या जबकि सीमान्त लागत न्यूनतम हो, होगा :

- (1) 6
- (2) 3
- (3) 10
- (4) 5

Options :
212807112885. 1
212807112886. 2
212807112887. 3
212807112888. 4

Question Number : 63 Question Id : 21280728223 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	MCQ3

Match List - I with List - II.

- | List - I | List - II |
|--|---------------------|
| (A) The minimum value of $f(x) = 8x^2 - 4x + 7$ is | (I) 48 |
| (B) The maximum value of $f(x) = x + \frac{1}{x}, x < 0$ is | (II) 13 |
| (C) The maximum slope of the curve $y = -2x^3 + 6x^2 + 7x + 26$ is | (III) -2 |
| (D) The minimum value of $f(x) = x^2 + \frac{128}{x}$ is | (IV) $\frac{13}{2}$ |

Choose the correct answer from the options given below :

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

Options :
212807112889. 1
212807112890. 2
212807112891. 3
212807112892. 4

Question Number : 63 Question Id : 21280728223 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ3

सूची - I तथा सूची - II को सुमेलित करें।

सूची - I	सूची - II
(A) $f(x) = 8x^2 - 4x + 7$ का न्यूनतम मान है :	(I) 48
(B) $f(x) = x + \frac{1}{x}, x < 0$ का अधिकतम मान है :	(II) 13
(C) वक्र $y = -2x^3 + 6x^2 + 7x + 26$ की स्पर्शरेखा की ढाल का अधिकतम मान है :	(III) -2
(D) $f(x) = x^2 + \frac{128}{x}$ का न्यूनतम मान है :	(IV) $\frac{13}{2}$

नीचे दिए गए विकल्पों में से सही उत्तर का चुनें।

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

Options :

- 212807112889. 1
- 212807112890. 2
- 212807112891. 3
- 212807112892. 4

Question Number : 64 Question Id : 21280728224 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 5 Wrong Marks : 1 Question Key Details :

Key	Value
Comprehension	MCQ3

A product costs the manufacturer ₹ 20 per unit. The demand function is given by $p(x) = 1000 - 20x$, then the quantity for maximum profit is :

- (1) 25 units
- (2) 50 units
- (3) 49 units
- (4) $\frac{49}{2}$ units

Options :

- 212807112893. 1
- 212807112894. 2
- 212807112895. 3
- 212807112896. 4

Question Number : 64 Question Id : 21280728224 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 5 Wrong Marks : 1 Question Key Details :

Key	Value
Comprehension	MCQ3

एक निर्माता की प्रति इकाई का उत्पाद मूल्य ₹ 20 है जिसका मांग फलन $p(x) = 1000 - 20x$, से दर्शाया जाता है तब अधिकतम लाभ के लिये उत्पाद की मात्रा है :

- (1) 25 इकाई
- (2) 50 इकाई
- (3) 49 इकाई
- (4) $\frac{49}{2}$ इकाई

Options :

212807112893. 1
212807112894. 2
212807112895. 3
212807112896. 4

Question Number : 65 Question Id : 21280728225 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ3

A discrete random variable X has the following probability distribution :

X :	0	1	2	3	4	5
P(X) :	b	3b	5b	3b	4b	6b

The value of b is :

- (1) $\frac{1}{25}$
- (2) $\frac{1}{5}$
- (3) $\frac{1}{22}$
- (4) 1

Options :

212807112897. 1
212807112898. 2
212807112899. 3
212807112900. 4

Question Number : 65 Question Id : 21280728225 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ3

एक असंतत यादृच्छिक चर X का प्रायिकता फलन निम्नलिखित है :

X :	0	1	2	3	4	5
P(X) :	b	3b	5b	3b	4b	6b

तब b का मान है :

- (1) $\frac{1}{25}$
- (2) $\frac{1}{5}$
- (3) $\frac{1}{22}$
- (4) 1

Options :

212807112897. 1
212807112898. 2
212807112899. 3
212807112900. 4

Question Number : 66 Question Id : 21280728226 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ3

A discrete random variable X takes the values 0, 1, 2, 3, 4 and its mean is 1.6. If $P(X=1)=0.4$, $P(X=4)=P(X=2)$ and $P(X=3)=2P(X=2)$, then $P(X=0)$ is :

- (1) 0.2
- (2) 0.1
- (3) 0.4
- (4) 0.3

Options :

212807112901. 1
212807112902. 2
212807112903. 3
212807112904. 4

Question Number : 66 Question Id : 21280728226 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ3

एक असंतत यादृच्छिक चर X के सम्भावित मान 0, 1, 2, 3, 4 हैं तथा उसका माध्य 1.6 है। यदि $P(X=1)=0.4$, $P(X=4)=P(X=2)$ तथा $P(X=3)=2P(X=2)$, तब $P(X=0)$ है :

- (1) 0.2
- (2) 0.1
- (3) 0.4
- (4) 0.3

Options :

- 212807112901. 1
- 212807112902. 2
- 212807112903. 3
- 212807112904. 4

Question Number : 67 Question Id : 21280728227 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	MCQ3

A telephone exchange receives on an average 5 calls per minute. The probability of receiving 3 or less calls per minute is :

- (1) $15e^{-5}$
- (2) $\frac{118}{3}e^{-5}$
- (3) $\frac{15}{4}e^{-5}$
- (4) $\frac{13}{3}e^{-4}$

Options :

- 212807112905. 1
- 212807112906. 2
- 212807112907. 3
- 212807112908. 4

Question Number : 67 Question Id : 21280728227 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	MCQ3

एक टेलीफोन एक्सचेंज प्रति मिनट औसतन 5 काल प्राप्त करता है। तब प्रति मिनट 3 या कम काल प्राप्त करने की प्रायिकता है :

- (1) $15e^{-5}$
- (2) $\frac{118}{3}e^{-5}$
- (3) $\frac{15}{4}e^{-5}$
- (4) $\frac{13}{3}e^{-4}$

Options :

- 212807112905. 1
- 212807112906. 2
- 212807112907. 3
- 212807112908. 4

Question Number : 68 Question Id : 21280728228 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ3

Match List - I with List - II.

- | List - I | List - II |
|--|--------------------|
| (A) In a binomial distribution, if $n = 10$, $q = 0.25$, then its mean is | (I) 12 |
| (B) If the mean of a binomial distribution is 6 and its variance is 3, then p is | (II) 7.5 |
| (C) In a binomial distribution, the probability of getting a success is $\frac{1}{4}$ and the standard distribution is 3, then its mean is | (III) 16 |
| (D) If the mean and variance of a binomial distribution are 4 and 3 respectively, then the number of trials is | (IV) $\frac{1}{2}$ |

Choose the correct answer from the options given below :

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

Options :

- 212807112909. 1
- 212807112910. 2
- 212807112911. 3
- 212807112912. 4

Question Number : 68 Question Id : 21280728228 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ3

सूची - I तथा सूची - II को सुमेलित करें।

सूची - I	सूची - II
(A) एक द्विपद बंटन में, यदि $n = 10$, $q = 0.25$, तब माध्य है :	(I) 12
(B) यदि द्विपद बंटन का माध्य 6 है तथा प्रसरण 3 है तब p का मान है :	(II) 7.5
(C) एक द्विपद बंटन में सफलता की प्रायिकता $\frac{1}{4}$ है तथा मानक विचलन 3 है, तब इसका माध्य है :	(III) 16
(D) यदि एक द्विपद बंटन का माध्य तथा प्रसरण क्रमशः 4 व 3 है, तब प्रयासों की संख्या है :	(IV) $\frac{1}{2}$

नीचे दिए गए विकल्पों में से सही उत्तर चुनें।

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

Options :

- 212807112909. 1
- 212807112910. 2
- 212807112911. 3
- 212807112912. 4

Question Number : 69 Question Id : 21280728229 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ3

If Paasche's index number is 160 and Laspeyre's index number is 250, then Fisher's index number is :

- (1) 150
- (2) 200
- (3) 300
- (4) 80

Options :

- 212807112913. 1
- 212807112914. 2
- 212807112915. 3
- 212807112916. 4

Question Number : 69 Question Id : 21280728229 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
-----	-------

Comprehension	MCQ3
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यदि पाशे सूचकांक 160 है तथा लेशपेयर सूचकांक 250 है, तब फिशर सूचकांक है :

- (1) 150
- (2) 200
- (3) 300
- (4) 80

Options :

- 212807112913. 1
- 212807112914. 2
- 212807112915. 3
- 212807112916. 4

Question Number : 70 Question Id : 21280728230 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ3

The prices and the quantities of three commodities are given are :

Commodity	Price (₹)		Quantities	
	in Year	in Year	in Year	in Year
	2006	2009	2006	2009
P	100	90	12	10
Q	80	x	8	7
R	60	50	4	6

The Laspeyre’s price index number for year 2009 with year 2006 as base is 200. The value of x is :

- (1) 320
- (2) 360
- (3) 140
- (4) 260

Options :

- 212807112917. 1
- 212807112918. 2
- 212807112919. 3
- 212807112920. 4

Question Number : 70 Question Id : 21280728230 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ3

तीन वस्तुओं की कीमत तथा मात्रा निम्न प्रकार दी गई है :

वस्तु	कीमत (₹)		मात्रा	
	वर्ष 2006 में	वर्ष 2009 में	वर्ष 2006 में	वर्ष 2009 में
P	100	90	12	10
Q	80	x	8	7
R	60	50	4	6

आधार वर्ष 2006 के सापेक्ष वर्ष 2009 के लिये लेशपेयर सूचकांक 200 है, तब x का मान है :

- (1) 320
- (2) 360
- (3) 140
- (4) 260

Options :

212807112917. 1
212807112918. 2
212807112919. 3
212807112920. 4

Question Number : 71 Question Id : 21280728231 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	MCQ3

Consider the following data :

Year	2012	2013	2014	2015	2016
Sales (in ₹ crores)	8	10	7	9	12

The equation of the straight line trend by the method of least squares is :

- (1) $y = 0.7 + 9.5x$
- (2) $y = 10.3 + 0.5x$
- (3) $y = 9.2 + 0.7x$
- (4) $y = 11.5 + 0.6x$

Options :

212807112921. 1
212807112922. 2
212807112923. 3
212807112924. 4

Question Number : 71 Question Id : 21280728231 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	MCQ3

निम्नलिखित आंकड़ों पर विचार करें :

वर्ष	2012	2013	2014	2015	2016
बिक्री (₹ करोड़ में)	8	10	7	9	12

तब न्यूनतम वर्ग विधि द्वारा उपनति रेखा का समीकरण है :

- (1) $y = 0.7 + 9.5x$
- (2) $y = 10.3 + 0.5x$
- (3) $y = 9.2 + 0.7x$
- (4) $y = 11.5 + 0.6x$

Options :

212807112921. 1
212807112922. 2
212807112923. 3
212807112924. 4

Question Number : 72 Question Id : 21280728232 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ3

Consider the following hypothesis test :

$H_0 : \mu \leq 20$

$H_1 : \mu > 20$

A sample of 81 produced a sample mean of 20.55. The population standard deviation is 3. The value of the test statistic is :

- (1) 1.85
- (2) - 2.05
- (3) - 2.15
- (4) 1.65

Options :

212807112925. 1
212807112926. 2
212807112927. 3
212807112928. 4

Question Number : 72 Question Id : 21280728232 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ3

निम्नलिखित परिकल्पना परीक्षण पर विचार करें :

$H_0 : \mu \leq 20$

$H_1 : \mu > 20$

आमाप 81 वाले एक प्रतिदर्श का प्रतिदर्श माध्य 20.55 है तथा समष्टि मानक विचलन 3 है, तब परीक्षण प्रतिदर्शज 't' का मान है :

- (1) 1.85
- (2) - 2.05
- (3) - 2.15
- (4) 1.65

Options :

- 212807112925. 1
- 212807112926. 2
- 212807112927. 3
- 212807112928. 4

Question Number : 73 Question Id : 21280728233 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ3

A simple random sample consists of four observations 7, 8, 10, 7. The point estimate of population standard deviation is :

- (1) $\sqrt{\frac{3}{2}}$
- (2) $\sqrt{3}$
- (3) 2.5
- (4) $\sqrt{2}$

Options :

- 212807112929. 1
- 212807112930. 2
- 212807112931. 3
- 212807112932. 4

Question Number : 73 Question Id : 21280728233 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ3

एक सामान्य यादृच्छिक प्रतिदर्श के चार प्रेक्षण 7, 8, 10, 7 हैं तब समष्टि मानक विचलन का आकलन बिन्दु है :

- (1) $\sqrt{\frac{3}{2}}$
- (2) $\sqrt{3}$
- (3) 2.5
- (4) $\sqrt{2}$

Options :

- 212807112929. 1
- 212807112930. 2
- 212807112931. 3
- 212807112932. 4

Question Number : 74 Question Id : 21280728234 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ3

Match List - I with List - II.

- | List - I | List - II |
|--|----------------------|
| (A) A special characteristic of a population is called | (I) Sample Size |
| (B) The number of statistical individuals in a sample is called | (II) Statistic |
| (C) A special characteristic of a sample is called | (III) Standard error |
| (D) The standard deviation of the sampling distribution of a statistic is known as its | (IV) Parameter |

Choose the correct answer from the options given below :

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

Options :

- 212807112933. 1
- 212807112934. 2
- 212807112935. 3
- 212807112936. 4

Question Number : 74 Question Id : 21280728234 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ3

सूची - I तथा सूची - II को सुमेलित करें।

- सूची - I

(A) समष्टि का विशेष अभिलाक्षणिक कहलाता है,

(B) एक प्रतिदर्श में सांख्यिकीय व्यष्टि कक्षाओं की संख्या कहलाता है,

(C) एक प्रतिदर्श का विशेष अभिलाक्षणिक कहलाता है,

(D) प्रतिदर्शन के प्रतिदर्शी बंटन का मानक विचलन इस प्रकार जाना जाता है,
- सूची - II

(I) प्रतिदर्श आमाप

(II) प्रतिदर्शज

(III) मानक त्रुटि

(IV) प्राचल

नीचे दिए गए विकल्पों में से सही उत्तर चुनें।

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

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

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

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

Options :

212807112933. 1

212807112934. 2

212807112935. 3

212807112936. 4

Question Number : 75 Question Id : 21280728235 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ3

The present value of a perpetual income of ₹ x payable at the end of each 6 months is ₹ 1,80,000. If the money is worth 5% compounded semi-annually, then the value of x is ₹ :

- (1) 4500

(2) 7500

(3) 9000

(4) 4250

Options :

212807112937. 1

212807112938. 2

212807112939. 3

212807112940. 4

Question Number : 75 Question Id : 21280728235 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ3

₹ x की शाश्वत आय जो प्रत्येक 6 माह के अंत में देय है, का वर्तमान मूल्य ₹ 1,80,000 है। यदि धन 5% चक्रवृद्धि अर्धवार्षिक दर से बढ़ रहा है तब x का मान ₹ में है :

- (1) 4500
- (2) 7500
- (3) 9000
- (4) 4250

Options :

- 212807112937. 1
- 212807112938. 2
- 212807112939. 3
- 212807112940. 4

Question Number : 76 Question Id : 21280728236 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ3

A person buys a flat for which he makes down payment of ₹ 7,50,000 and the balance is to be paid in 10 years by monthly instalments of ₹ 22,000 each. If the bank charges interest at the rate of 12% per annum, then the actual price of the flat using flat rate system is :

- (1) ₹ 20,50,000
- (2) ₹ 19,50,000
- (3) ₹ 22,00,000
- (4) ₹ 18,50,000

Options :

- 212807112941. 1
- 212807112942. 2
- 212807112943. 3
- 212807112944. 4

Question Number : 76 Question Id : 21280728236 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ3

एक व्यक्ति एक फ्लैट खरीदता है जिसके लिये वह ₹ 7,50,000 का अग्रिम भुगतान करता है तथा शेष राशि ₹ 22,000 की मासिक किश्तों से 10 वर्षों में चुकाता है यदि बैंक 12% वार्षिक दर से ब्याज वसूलता है तब स्थिर दर विधि से फ्लैट की वास्तविक कीमत है :

- (1) ₹ 20,50,000
- (2) ₹ 19,50,000
- (3) ₹ 22,00,000
- (4) ₹ 18,50,000

Options :

- 212807112941. 1
- 212807112942. 2
- 212807112943. 3
- 212807112944. 4

Question Number : 77 Question Id : 21280728237 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	MCQ3

A car costing ₹ 8,00,000 has scrap value of ₹ 3,00,000. If the book value of car at the end of fourth year is ₹ 6,00,000, then the useful life of the car is :

- (1) 6 years
- (2) 12 years
- (3) 10 years
- (4) 8 years

Options :
212807112945. 1
212807112946. 2
212807112947. 3
212807112948. 4

Question Number : 77 Question Id : 21280728237 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	MCQ3

एक कार जिसकी कीमत ₹ 8,00,000 का अपघर्षित मूल्य ₹ 3,00,000 है। यदि 4 वर्ष के अन्त में कार का पुस्तक मूल्य ₹ 6,00,000 है तब कार का जीवनकाल है :

- (1) 6 वर्ष
- (2) 12 वर्ष
- (3) 10 वर्ष
- (4) 8 वर्ष

Options :
212807112945. 1
212807112946. 2
212807112947. 3
212807112948. 4

Question Number : 78 Question Id : 21280728238 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	MCQ3

The minimum value of $z = 3x + 6y$ subject to the constraints $2x + 3y \leq 180, x + y \geq 60, x \geq 3y, x \geq 0, y \geq 0$ is :

- (1) 225
- (2) 180
- (2) 270
- (4) 250

Options :

- 212807112949. 1
- 212807112950. 2
- 212807112951. 3
- 212807112952. 4

Question Number : 78 Question Id : 21280728238 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ3

व्यवरोधों $2x + 3y \leq 180$, $x + y \geq 60$, $x \geq 3y$, $x \geq 0$, $y \geq 0$ के अंतर्गत $z = 3x + 6y$ का न्यूनतम मान है :

- (1) 225
- (2) 180
- (2) 270
- (4) 250

Options :

- 212807112949. 1
- 212807112950. 2
- 212807112951. 3
- 212807112952. 4

Question Number : 79 Question Id : 21280728239 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ3

A carpenter earns a profit of ₹ 50 and ₹ 80 on one chair and one table respectively. The requirement and availability of wood and labour are tabled as :

Required	Chair	Table	Available quantity
Wood	3	5	150
Labour	1	2	56

The number of chairs and tables in appropriate units to be manufactured for maximum profit are, respectively :

- (1) 0, 28
- (2) 50, 0
- (3) 20, 18
- (4) 0, 30

Options :

- 212807112953. 1
- 212807112954. 2
- 212807112955. 3
- 212807112956. 4

Question Number : 79 Question Id : 21280728239 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ3

एक बढ़ई एक कुर्सी तथा एक मेज पर क्रमशः ₹ 50 तथा ₹ 80 का लाभ कमाता है। लकड़ी व श्रमिक की आवश्यकता तथा उपलब्धता तालिका निम्न प्रकार है :

आवश्यक	कुर्सी	मेज	उपलब्ध मात्रा
लकड़ी	3	5	150
श्रमिक	1	2	56

अधिकतम लाभ के लिये निर्मित कुर्सियों तथा टेबलों की उचित इकाइयों की संख्या क्रमशः है :

- (1) 0, 28
- (2) 50, 0
- (3) 20, 18
- (4) 0, 30

Options :

- 212807112953. 1
- 212807112954. 2
- 212807112955. 3
- 212807112956. 4

Question Number : 80 Question Id : 21280728240 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ3

Match List - I with List - II.

- | List - I | List - II |
|---|-----------------------|
| (A) The common region determined by all the linear constraints of a L.P.P. is called | (I) corner point |
| (B) A point in the feasible region which is the intersection of two boundary lines is called, | (II) non-negative |
| (C) The feasible region for an LPP is always a | (III) feasible region |
| (D) The constraints $x, y \geq 0$ describes that the variables involved in a LPP are | (IV) convex polygon |

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

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

Options :

- 212807112957. 1
- 212807112958. 2
- 212807112959. 3
- 212807112960. 4

Question Number : 80 Question Id : 21280728240 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	MCQ3

सूची - I तथा सूची - II को सुमेलित करें।

- सूची - I**

(A) एक रैखिक प्रोग्रामन समस्या (LPP) के सभी रैखिक व्यवरोधों का उभयनिष्ठ क्षेत्र कहलाता है :

(B) सुसंगत क्षेत्र का वह बिन्दु जो दो सीमा रेखाओं का प्रतिच्छेद है, कहलाता है :

(C) एक LPP का सुसंगत क्षेत्र सदैव होता है :

(D) व्यवरोध $x, y \geq 0$ दर्शाता है कि LPP में सम्मिलित चर हैं :
- सूची - II**

(I) कोनीय बिन्दु

(II) ऋणोत्तर

(III) सुसंगत क्षेत्र

(IV) अवमुख बहुभुज

नीचे दिए गए विकल्पों में से सही उत्तर चुनें।

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

Options :
212807112957. 1
212807112958. 2
212807112959. 3
212807112960. 4
Sub-Section Number : 2
Sub-Section Id : 2128072062
Question Shuffling Allowed : No
Is Section Default? : null

Question Number : 81 Question Id : 21280728241 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	Comp2

The set of all positive integers less than 50 forming the equivalence class of 8 for modulo 11 is :

- (1) {8, 16, 24, 32, 40, 48}
- (2) {11, 22, 33, 44}
- (3) {8, 19, 30, 41}
- (4) {8, 19, 27, 35, 43}

Options :
212807112961. 1
212807112962. 2
212807112963. 3
212807112964. 4

Question Number : 81 Question Id : 21280728241 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	Comp2

मापांक 11 के लिये 8 की तुल्यता वर्ग से निर्मित करने वाले 50 से कम सभी घन पूर्णाकों समुच्चय है :

- (1) {8, 16, 24, 32, 40, 48}
- (2) {11, 22, 33, 44}
- (3) {8, 19, 30, 41}
- (4) {8, 19, 27, 35, 43}

Options :

- 212807112961. 1
- 212807112962. 2
- 212807112963. 3
- 212807112964. 4

Question Number : 82 Question Id : 21280728242 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	Comp2

If $x = 3at^2$, $y = 3at^4$ then $\frac{dy}{dx}$ is :

- (1) $3at$
- (2) $12at^3$
- (3) $6at$
- (4) $2t^2$

Options :

- 212807112965. 1
- 212807112966. 2
- 212807112967. 3
- 212807112968. 4

Question Number : 82 Question Id : 21280728242 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	Comp2

यदि $x = 3at^2$, $y = 3at^4$ तब $\frac{dy}{dx}$ है :

- (1) $3at$
- (2) $12at^3$
- (3) $6at$
- (4) $2t^2$

Options :

- 212807112965. 1
- 212807112966. 2
- 212807112967. 3
- 212807112968. 4

Question Number : 83 Question Id : 21280728243 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	Comp2

In the equation of trend line $y_t = a + bx$, a and b represent :

- (1) the mean of y and the slope of trend line respectively
- (2) the slope of trend line and the mean of y respectively
- (3) the mean of xy and the slope of tend line respectively
- (4) the slope of trend line and the mean of x respectively

Options :

- 212807112969. 1
- 212807112970. 2
- 212807112971. 3
- 212807112972. 4

Question Number : 83 Question Id : 21280728243 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	Comp2

उपनति रेखा का समीकरण $y_t = a + bx$, यहाँ a तथा b प्रदर्शित करता है :

- (1) क्रमशः y का माध्य तथा उपनति रेखा का ढाल
- (2) क्रमशः उपनति रेखा का ढाल तथा y का माध्य
- (3) क्रमशः xy का माध्य तथा उपनति रेखा का ढाल
- (4) क्रमशः उपनति रेखा का ढाल तथा x का माध्य

Options :

- 212807112969. 1
- 212807112970. 2
- 212807112971. 3
- 212807112972. 4

Question Number : 84 Question Id : 21280728244 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	Comp2

If Mr. Ravi borrows a sum of ₹ 1,50,000 at an interest rate of 10% (flat) for a tenure of 3 years, then his EMI based on above data is (approximately) ₹ :

- (1) 5410
- (2) 5412
- (3) 5414
- (4) 5417

Options :

- 212807112973. 1
- 212807112974. 2
- 212807112975. 3
- 212807112976. 4

Question Number : 84 Question Id : 21280728244 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	Comp2

श्रीमान रवि ने ₹ 1,50,000 का ऋण 10% स्थिर ब्याज की दर से 3 वर्षों के लिये लिया। उपरोक्त सूचना के आधार पर मासिक किश्त (₹ में) लगभग है :

- (1) 5410
- (2) 5412
- (3) 5414
- (4) 5417

Options :
212807112973. 1
212807112974. 2
212807112975. 3
212807112976. 4

Question Number : 85 Question Id : 21280728245 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	Comp2

Which of the following statements are true ?

- (A) Central limit theorem states that the sampling distribution of the mean ($\bar{x}$) approaches a normal distribution as the sample size increases.
- (B) As per *Central Limit Theorem*, when the sample size increases, the mean ($\bar{x}$) for the data becomes closer to the mean of *overall population*.
- (C) The shape of t-distribution does not depend on degree of freedom.

Choose the correct answer from the options given below :

- (1) (A), (C) only
- (2) (B), (C) only
- (3) (A) only
- (4) (B) only

Options :
212807112977. 1
212807112978. 2
212807112979. 3
212807112980. 4

Question Number : 85 Question Id : 21280728245 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 5 Wrong Marks : 1
Question Key Details :

Key	Value
Comprehension	Comp2

निम्न में से कौन सा कथन सत्य है?

- (A) केन्द्रीय बिन्दु प्रमेय के कथनानुसार माध्य ($\bar{x}$) का प्रतिदर्शी बंटन, प्रसामान्य बंटन को उपगमन करता है यदि प्रतिदर्श आकार बढ़ता है
- (B) केन्द्रीय बिन्दु प्रमेय के अनुसार जब प्रतिदर्श आकार बढ़ता है तब आंकड़ों का माध्य ($\bar{x}$) पूर्ण समष्टि के माध्य के नजदीक होता है
- (C) t- बंटन की आकृति स्वतंत्रता की कोटि पर निर्भर नहीं करती।

दिये गये विकल्पों में से सही विकल्प चुनें :

- (1) केवल (A), (C)
- (2) केवल (B), (C)
- (3) केवल (A)
- (4) केवल (B)

Options :

- 212807112977. 1
- 212807112978. 2
- 212807112979. 3
- 212807112980. 4

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