

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 $f(x) = 10 - 6x - 2x^2$ हासमान 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

अवकल समीकरण $\frac{\left\{1 + \left(\frac{dy}{dx}\right)^2\right\}^{\frac{5}{2}}}{\frac{d^2y}{dx^2}} = p$ की कोटि तथा घात का योग p है, तो p बराबर है :

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

Options :

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

Question Number : 11 Question Id : 21280728171 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 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) $y = -3 - \frac{6}{x}$

Options :

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

Question Number : 11 Question Id : 21280728171 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

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 चिह्नों 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 रेखिक 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

List - II

- | | |
|-----------------------------------------------|-----------------------------------------------------------|
| (A) Range of $y = \operatorname{cosec}^{-1}x$ | (I) $R - (-1, 1)$ |
| (B) Domain of $\sec^{-1}x$ | (II) $(0, \pi)$ |
| (C) Domain of $\sin^{-1}x$ | (III) $[-1, 1]$ |
| (D) Range of $y = \cot^{-1}x$ | (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

सूची - II

- | | |
|-----------------------------------------------|-----------------------------------------------------------|
| (A) $y = \operatorname{cosec}^{-1}x$ का परिसर | (I) $R - (-1, 1)$ |
| (B) $\sec^{-1}x$ का प्रान्त | (II) $(0, \pi)$ |
| (C) $\sin^{-1}x$ का प्रान्त | (III) $[-1, 1]$ |
| (D) $y = \cot^{-1}x$ का परिसर | (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

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

(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

List - 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 |

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 $\begin{vmatrix} \cos\theta & \sin\theta & 0 \\ -\sin\theta & \cos\theta & 0 \\ 0 & 0 & c \end{vmatrix}$ 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 $\begin{vmatrix} \cos\theta & \sin\theta & 0 \\ -\sin\theta & \cos\theta & 0 \\ 0 & 0 & c \end{vmatrix}$ 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 हैं 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 $f(x) = \sin^4 x + \cos^4 x$ 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

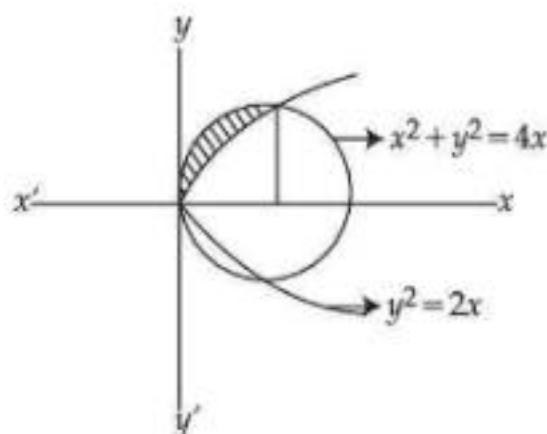
212807112770. 2

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

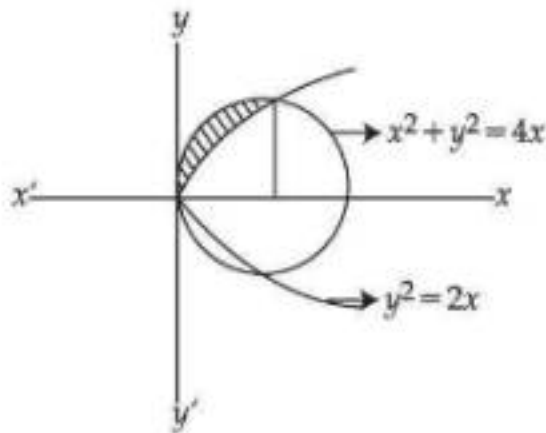
Options :

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

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 हैं 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

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 हैं, 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 अवरोधों से निर्मित उभयनिष्ठ क्षेत्र कहलाता है। | (I) उद्देश्य फलन |
| (B) न्यूनतम $z = c_1x_1 + c_2x_2 + \dots + c_nx_n$ है। | (II) अवमुख समुच्चय |
| (C) LPP के ऋणोत्तर अवरोधों को भी संतुष्ट करने वाला हल कहलाता है। | (III) सुसंगत क्षेत्र |
| (D) LPP के सभी सुसंगत हलों का समुच्चय है। | (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 : 21280728263 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

- Maximum value of $z = 5x + 3y$ is 10
- Minimum value of $z = 5x + 3y$ is 0
- Maximum value of $z = 5x + 3y$ is $\frac{235}{19}$ and minimum value is 0
- 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	Comp1

The inverse of the function $f: \mathbb{R} \rightarrow \mathbb{R}$ 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 $f: \mathbb{R} \rightarrow \mathbb{R}$ 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	Compl

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	Compl

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 घण्टों 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

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 deviation 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
---------------	------

यदि पासे 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

- (A) A special characteristic of a population is called
(B) The number of statistical individuals in a sample is called
(C) A special characteristic of a sample is called
(D) The standard deviation of the sampling distribution of a statistic is known as its

List - II

- (I) Sample Size
(II) Statistic
(III) Standard error
(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,

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

सूची - II

- (I) प्रतिदर्श आमाप
(II) प्रतिदर्शज
(III) मानक त्रुटि
(IV) प्राचल

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 बड़ई 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

सूची - II

- (A) एक रेखी प्रोग्रामन समस्या (LPP) के सभी रेखिक 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 :

- (I) कोनीय बिन्दु
- (II) ऋणत्तर
- (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

मार्पांक 11 के लिये 8 की तुल्यता वर्ग से निर्मित करने वाले 50 से कम सभी घन पूर्णांकों 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 trend 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

Physics

Group Number :	2
Group Id :	212807616
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 :	Can't View
Show Progress Bar? :	No

Physics

Section Id :	212807720
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	50
Number of Questions to be attempted :	40
Section Marks :	200
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	2128072063
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 86 Question Id : 21280728246 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	MCQ
---------------	-----

The potential of a uniformly charged spherical shell at a point $r/2$ from its centre is 5 V. The potential at its surface is :

(Given radius of shell = r)

- (1) zero
- (2) 2.5 V
- (3) 5 V
- (4) 10 V

Options :

212807112981. 1
212807112982. 2
212807112983. 3
212807112984. 4

Question Number : 86 Question Id : 21280728246 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	MCQ

यह एक-समान रूप से आवेशित गोलाकार खोल का विभद केन्द्र से $r/2$ दूरी पर 5 V है। इसके सतह पर विभद है :

(खोल की त्रिज्या = r)

- (1) शून्य
- (2) 2.5 V
- (3) 5 V
- (4) 10 V

Options :

212807112981. 1
212807112982. 2
212807112983. 3
212807112984. 4

Question Number : 87 Question Id : 21280728247 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	MCQ

The capacitance of capacitor increases when :

- (A) its charge increases
- (B) its supply voltage decreases
- (C) common area of the plates increases
- (D) separation between the plates decreases

Choose the correct answer

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

Options :

212807112985. 1
212807112986. 2
212807112987. 3
212807112988. 4

Question Number : 87 Question Id : 21280728247 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	MCQ

संधारित्र की धारिता बढ़ती है जब :

- (A) इसका आदेश बढ़ता है।
- (B) इसका स्रोत वोल्टता घटती है।
- (C) पट्टिका का उभयनिष्ठ क्षेत्र बढ़ता है।
- (D) पट्टिकाओं के बीच की दूरी घटती है।

सही उत्तर का चयन करें।

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

Options :

212807112985. 1
212807112986. 2
212807112987. 3
212807112988. 4

Question Number : 88 Question Id : 21280728248 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	MCQ

Two point charges $+4\ \mu\text{C}$ and $-2\ \mu\text{C}$ are placed at a certain distance in air. They experience an attractive force F . If they are brought in contact with each other and then separated to the same distance, the new repulsive force between them will be :

- (1) $8F$
- (2) $4F$
- (3) $F/8$
- (4) $F/4$

Options :

212807112989. 1
212807112990. 2
212807112991. 3
212807112992. 4

Question Number : 88 Question Id : 21280728248 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	MCQ

दो आवेशों $+4\ \mu\text{C}$ और $-2\ \mu\text{C}$ को वायु में एक निश्चित दूरी पर रखा गया है। वे एक आकर्षता बल F का अनुभव करते हैं। यदि उनको एक दूसरे के सम्पर्क में लाया जाए और फिर उसी दूरी पर अलग कर दिया जाए तो दोनों के बीच नया विकर्षण बल होगा :

- (1) $8F$
- (2) $4F$
- (3) $F/8$
- (4) $F/4$

Options :

212807112989. 1
212807112990. 2
212807112991. 3
212807112992. 4

Question Number : 89 Question Id : 21280728249 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	MCQ

A spherical conducting shell of inner radius r_1 and outer radius r_2 has a charge Q . A charge q is placed at the centre of the shell. The surface charge density on outer surface of the shell is :

- (1) $\frac{Q + q}{4\pi r_2^2}$
- (2) $\frac{Q - q}{4\pi r_2^2}$
- (3) $\frac{Q + q}{4\pi(r_2^2 - r_1^2)}$
- (4) $\frac{Q - q}{4\pi(r_2^2 - r_1^2)}$

Options :

212807112993. 1

212807112994. 2

212807112995. 3

212807112996. 4

Question Number : 89 Question Id : 21280728249 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	MCQ

एक गोलाकार चालक खोल का आंतरिक त्रिज्या r_1 तथा बाहरी त्रिज्या r_2 के पास आवेश Q है। एक आवेश q को खोल के केन्द्र में रखा गया है। बाहरी सतह पर आवेश घनत्व है :

- (1) $\frac{Q + q}{4\pi r_2^2}$
- (2) $\frac{Q - q}{4\pi r_2^2}$
- (3) $\frac{Q + q}{4\pi(r_2^2 - r_1^2)}$
- (4) $\frac{Q - q}{4\pi(r_2^2 - r_1^2)}$

Options :

212807112993. 1

212807112994. 2

212807112995. 3

212807112996. 4

Question Number : 90 Question Id : 21280728250 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	MCQ
---------------	-----

Two charges $5\ \mu\text{C}$ and $-2\ \mu\text{C}$ (with no external field) are placed at $(-9\ \text{cm}, 0, 0)$ and $(9\ \text{cm}, 0, 0)$ respectively. The work required to separate the two charges infinitely away from each other is :

- (1) $-0.5\ \text{J}$
- (2) $0.5\ \text{J}$
- (3) $5\ \text{J}$
- (4) $-5\ \text{J}$

Options :

212807112997, 1
212807112998, 2
212807112999, 3
212807113000, 4

Question Number : 90 Question Id : 21280728250 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	MCQ

दो आवेशों $5\ \mu\text{C}$ तथा $-2\ \mu\text{C}$ (बिना बाह्य क्षेत्र के) को क्रमशः बिंदुओं $(-9\ \text{cm}, 0, 0)$ तथा $(9\ \text{cm}, 0, 0)$ पर रखा है। दो आवेशों को एक दुसरे से अनंत दूरी तक ले जाने में आवश्यक कार्य है :

- (1) $-0.5\ \text{J}$
- (2) $0.5\ \text{J}$
- (3) $5\ \text{J}$
- (4) $-5\ \text{J}$

Options :

212807112997, 1
212807112998, 2
212807112999, 3
212807113000, 4

Question Number : 91 Question Id : 21280728251 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	MCQ

An infinite line charge produces an electric field of $9 \times 10^6\ \text{N/C}$ at a distance of $20\ \text{cm}$. The linear charge density will be :

- (1) $10^{-3}\ \text{C/m}$
- (2) $10^{-4}\ \text{C/m}$
- (3) $10^{-2}\ \text{C/m}$
- (4) $10^{-5}\ \text{C/m}$

Options :

212807113001, 1
212807113002, 2
212807113003, 3
212807113004, 4

Question Number : 91 Question Id : 21280728251 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	MCQ

एक अनन्त रेखिय आवेश 20 cm दूरी पर एक $9 \times 10^6\text{ N/C}$ का विद्युत क्षेत्र उत्पन्न करता है। रेखिय आवेश घनत्व होगा :

- (1) 10^{-3} C/m
- (2) 10^{-4} C/m
- (3) 10^{-2} C/m
- (4) 10^{-5} C/m

Options :

212807113001. 1
212807113002. 2
212807113003. 3
212807113004. 4

Question Number : 92 Question Id : 21280728252 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	MCQ

Which of the following statement is correct for a potentiometer ?

- (1) It cannot measure resistance
- (2) It cannot measure the capacitance of a capacitor
- (3) It cannot measure current
- (4) It cannot measure potential difference

Options :

212807113005. 1
212807113006. 2
212807113007. 3
212807113008. 4

Question Number : 92 Question Id : 21280728252 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	MCQ

एक विभवमापी के लिए निम्न में से सत्य है ?

- (1) यह प्रतिरोध का मापन नहीं कर सकता है।
- (2) यह संधारित्र की धारिता का मापन नहीं कर सकता है।
- (3) यह धारा का मापन नहीं कर सकता है।
- (4) यह विभावंतर का मापन नहीं कर सकता है।

Options :

212807113005. 1
212807113006. 2

Question Number : 93 Question Id : 21280728253 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	MCQ

Match List - I with List - II.

List - I

List - II

- | | |
|-------------------------------|--------------------------------|
| (A) Conductance | (I) $[ML^3 T^{-3} A^{-2}]$ |
| (B) Current density | (II) $[M^{-1} L^{-3} T^3 A^2]$ |
| (C) Specific resistance | (III) $[M^0 L^{-2} T^0 A^1]$ |
| (D) Electrical conductivities | (IV) $[M^{-1} L^{-2} T^3 A^2]$ |

Choose the correct answer from the options given below :

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

Options :

212807113009.1

212807113010.2

212807113011.3

212807113012.4

Question Number : 93 Question Id : 21280728253 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	MCQ

सूची - I को साथ सूची-II को मिलाये।

सूची - I

सूची - II

- | | |
|----------------------|--------------------------------|
| (A) चालकत्व | (I) $[ML^3 T^{-3} A^{-2}]$ |
| (B) धारा घनत्व | (II) $[M^{-1} L^{-3} T^3 A^2]$ |
| (C) विशिष्ट प्रतिरोध | (III) $[M^0 L^{-2} T^0 A^1]$ |
| (D) विद्युतीय चालकता | (IV) $[M^{-1} L^{-2} T^3 A^2]$ |

निम्न विकल्पों में से सही उत्तर चुने :

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

Options :

212807113009.1

212807113010.2

212807113011, 3

212807113012, 4

Question Number : 94 Question Id : 21280728254 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	MCQ

A bulb of 100 W glows for 6 hours a day. The units of energy consumed in 7 days would be :

- (1) 2.4 units
- (2) 4.2 units
- (3) 600 units
- (4) 4200 units

Options :

212807113013, 1

212807113014, 2

212807113015, 3

212807113016, 4

Question Number : 94 Question Id : 21280728254 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	MCQ

एक 100 W का बल्ब एक दिन में 6 घंटे तक प्रकाशित होता है। 7 दिनों में उमुक्त ऊर्जा को मात्रा होगी :

- (1) 2.4 इकाई
- (2) 4.2 इकाई
- (3) 600 इकाई
- (4) 4200 इकाई

Options :

212807113013, 1

212807113014, 2

212807113015, 3

212807113016, 4

Question Number : 95 Question Id : 21280728255 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	MCQ

Ten capacitors each of $2\ \mu\text{F}$ capacity were arranged in two rows such that first row contains 6 capacitors in series where as the rest were in second row. The equivalent capacitance of the network is :

- (1) $\frac{5}{6}\mu\text{F}$
- (2) $20\mu\text{F}$
- (3) $\frac{24}{5}\mu\text{F}$
- (4) $\frac{6}{5}\mu\text{F}$

Options :

212807113017. 1

212807113018. 2

212807113019. 3

212807113020. 4

Question Number : 95 Question Id : 21280728255 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	MCQ

दस संधारित्रों प्रत्येक की धारिता $2\ \mu\text{F}$ है को दो पंक्ति में इस प्रकार व्यवस्थित किया गया है कि पहली पंक्ति में 6 संधारित्र श्रेणीक्रम में हैं और बाकि को द्वितीय पंक्ति में। संयोजन का समतुल्य धारिता है :

- (1) $\frac{5}{6}\mu\text{F}$
- (2) $20\mu\text{F}$
- (3) $\frac{24}{5}\mu\text{F}$
- (4) $\frac{6}{5}\mu\text{F}$

Options :

212807113017. 1

212807113018. 2

212807113019. 3

212807113020. 4

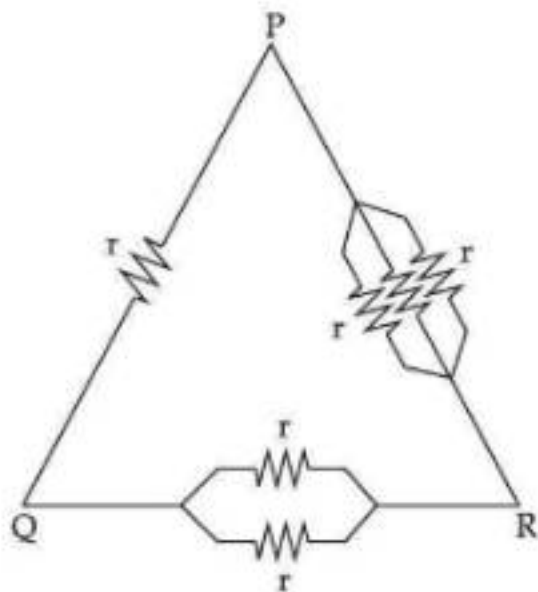
Question Number : 96 Question Id : 21280728256 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ

Six equal resistances are connected between points P, Q and R as shown in the figure. The net resistance will be maximum between :



- (1) P and Q
- (2) Q and R
- (3) P and R
- (4) All points will have same resistance

Options :

212807113021. 1

212807113022. 2

212807113023. 3

212807113024. 4

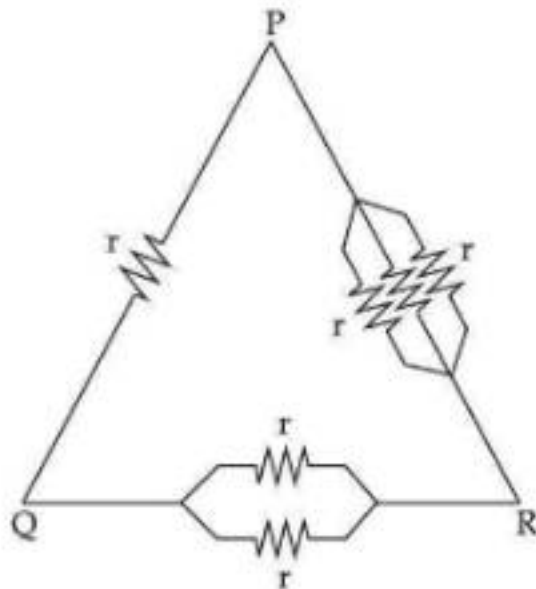
Question Number : 96 Question Id : 21280728256 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ

छ: समान प्रतिरोधक को चित्रानुसार बिंदुओं P, Q और R के बीच में संयोजित किया गया है। कुल प्रतिरोध बीच में अधिकतम होगा :



- (1) P और Q
- (2) Q और R
- (3) P और R
- (4) सभी बिंदुओं पर बराबर प्रतिरोध होगा।

Options :

212807113021. 1
212807113022. 2
212807113023. 3
212807113024. 4

Question Number : 97 Question Id : 21280728257 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	MCQ

The susceptibility (χ_m) and permeability (μ) of a perfectly diamagnetic substance are :

- (1) $\chi_m = -1$ and $\mu = 0$
- (2) $\chi_m = 0$ and $\mu = 1$
- (3) $\chi_m = 1$ and $\mu = -1$
- (4) $\chi_m = 1$ and $\mu = 0$

Options :

212807113025. 1
212807113026. 2
212807113027. 3
212807113028. 4

Question Number : 97 Question Id : 21280728257 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	MCQ
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एक पूर्ण प्रतिचुम्बकीय पदार्थ में चुम्बकशीलता (χ_m) तथा पारगम्यता (μ) है :

- (1) $\chi_m = -1$ और $\mu = 0$
- (2) $\chi_m = 0$ और $\mu = 1$
- (3) $\chi_m = 1$ और $\mu = -1$
- (4) $\chi_m = 1$ और $\mu = 0$

Options :

212807113025. 1
212807113026. 2
212807113027. 3
212807113028. 4

Question Number : 98 Question Id : 21280728258 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	MCQ

At a place, the horizontal component of earth's magnetic field is $4 \times 10^{-4} \text{ T}$ and angle of dip is 60° . The value of horizontal component of earth's magnetic field at the equator is :

- (1) $\sqrt{2} \times 10^{-4} \text{ T}$
- (2) $2 \times 10^{-4} \text{ T}$
- (3) Zero
- (4) $8 \times 10^{-4} \text{ T}$

Options :

212807113029. 1
212807113030. 2
212807113031. 3
212807113032. 4

Question Number : 98 Question Id : 21280728258 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	MCQ

एक स्थान पर, पृथ्वी के चुम्बकीय क्षेत्र का क्षैतिज घटक $4 \times 10^{-4} \text{ T}$ और नति कोण 60° है। विषवत रेखा पर पृथ्वी के चुम्बकीय क्षेत्र का क्षैतिज घटक है :

- (1) $\sqrt{2} \times 10^{-4} \text{ T}$
- (2) $2 \times 10^{-4} \text{ T}$
- (3) Zero
- (4) $8 \times 10^{-4} \text{ T}$

Options :

212807113029. 1
212807113030. 2
212807113031. 3
212807113032. 4

Question Number : 99 Question Id : 21280728259 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	MCQ

Match List - I with List - II.

List - I

- (A) Magnetic dipole moment
- (B) Magnetic permeability
- (C) Pole strength
- (D) Magnetic flux density

List - II

- (I) Weber/m²
- (II) Am (Ampere m)
- (III) Henry/m
- (IV) Am² (Ampere m²)

Choose the correct answer from the options given below :

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

Options :

- 212807113033. 1
- 212807113034. 2
- 212807113035. 3
- 212807113036. 4

Question Number : 99 Question Id : 21280728259 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	MCQ

सूची - I को सूची - II का मिलान कीजिए :

सूची - I

- (A) चुम्बकीय द्विध्रुव आघूर्ण
- (B) चुम्बकीय पारगम्यता
- (C) ध्रुव प्रबलता
- (D) चुम्बकी घनत्व फ्लक्स

सूची - II

- (I) Weber/m²
- (II) Am (Ampere m)
- (III) Henry/m
- (IV) Am² (Ampere m²)

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

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

Options :

- 212807113033. 1
- 212807113034. 2
- 212807113035. 3
- 212807113036. 4

Question Number : 100 Question Id : 21280728260 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	MCQ

Ferro-magnetic materials used in transformer core must have :

- (1) low permeability and high hysteresis loss
- (2) high permeability and low hysteresis loss
- (3) high permeability and high hysteresis loss
- (4) low permeability and low hysteresis loss

Options :

212807113037. 1
212807113038. 2
212807113039. 3
212807113040. 4

Question Number : 100 Question Id : 21280728260 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	MCQ

ट्रांसफार्मर कोर में प्रयुक्त लौह चुम्बकीय पदार्थ का उपयोग होता है, जिसके पास निश्चित रूप से :

- (1) निम्न पारगम्यता और उच्च शैथिल्य ह्रास
- (2) उच्च पारगम्यता और निम्न शैथिल्य ह्रास
- (3) उच्च पारगम्यता और उच्च शैथिल्य ह्रास
- (4) निम्न पारगम्यता और निम्न शैथिल्य ह्रास

Options :

212807113037. 1
212807113038. 2
212807113039. 3
212807113040. 4

Question Number : 101 Question Id : 21280728261 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	MCQ

For a long wire carrying a current of 10 A, the magnitude of magnetic field at a point 4 cm away from it will be :

- (1) 4×10^{-5} T
- (2) 2×10^{-5} T
- (3) 10^{-5} T
- (4) 5×10^{-5} T

Options :

212807113041. 1
212807113042. 2
212807113043. 3

Question Number : 101 Question Id : 21280728261 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	MCQ

एक लम्बे तार में 10 A की धारा है, इससे 4 cm दूरी पर स्थित एक बिंदु पर चुम्बकीय क्षेत्र का परिमाण होगा :

- (1) $4 \times 10^{-5} \text{ T}$
- (2) $2 \times 10^{-5} \text{ T}$
- (3) 10^{-5} T
- (4) $5 \times 10^{-5} \text{ T}$

Options :

212807113041. 1
 212807113042. 2
 212807113043. 3
 212807113044. 4

Question Number : 102 Question Id : 21280728262 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	MCQ

A charge of $5 \mu\text{C}$ moves with a speed of $2 \times 10^6 \text{ m/s}$ along the positive y -axis. A magnetic field \vec{B} of strength $(2\hat{i} + \hat{k})\text{T}$ exists in space. The magnetic force acting on the charge is :

- (1) $(-20\hat{k} + 10\hat{i}) \text{ N}$
- (2) $(20\hat{k} - 10\hat{i}) \text{ N}$
- (3) $(20\hat{k} + 10\hat{i}) \text{ N}$
- (4) $(10\hat{i} + 5\hat{k}) \text{ N}$

Options :

212807113045. 1
 212807113046. 2
 212807113047. 3
 212807113048. 4

Question Number : 102 Question Id : 21280728262 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	MCQ

5 μC आवेश $2 \times 10^6 \text{ m/s}$ चाल से धनात्मक y -अक्ष पर गति करता है। एक चुम्बकीय क्षेत्र \vec{B} की प्रबलता $(2\hat{i} + \hat{k})\text{T}$ निर्वात में है। आवेश पर आरोपित चुम्बकीय बल है :

- (1) $(-20\hat{k} + 10\hat{i}) \text{ N}$
- (2) $(20\hat{k} - 10\hat{i}) \text{ N}$
- (3) $(20\hat{k} + 10\hat{i}) \text{ N}$
- (4) $(10\hat{i} + 5\hat{k}) \text{ N}$

Options :

212807113045. 1
212807113046. 2
212807113047. 3
212807113048. 4

Question Number : 103 Question Id : 21280728263 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	MCQ

The circuits where transformers are used :

- (1) ac circuits
- (2) dc circuits
- (3) in both ac circuits and dc circuits
- (4) neither in ac circuits nor in dc circuits

Options :

212807113049. 1
212807113050. 2
212807113051. 3
212807113052. 4

Question Number : 103 Question Id : 21280728263 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	MCQ

परिपथ जहाँ ट्रांसफार्मर का उपयोग होता है :

- (1) ac परिपथ
- (2) dc परिपथ
- (3) दोनों ac और dc परिपथ में
- (4) ना तो ac और ना ही dc परिपथ में

Options :

212807113049. 1
212807113050. 2
212807113051. 3

Question Number : 104 Question Id : 21280728264 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	MCQ

The statement that is NOT true about induced emf is :

- (1) The induced emf lasts so long as the change in magnetic flux continues
- (2) The direction of induced emf is given by Lenz's law
- (3) Whenever the amount of magnetic flux linked with a circuit changes, an emf is induced in the circuit
- (4) Larger the amount of magnetic flux linked with a circuit greater is the emf induced in it

Options :

212807113053. 1
 212807113054. 2
 212807113055. 3
 212807113056. 4

Question Number : 104 Question Id : 21280728264 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	MCQ

विद्युत वाहक बल (emf) के बारे में असत्य कथन है :

- (1) प्रेरित emf चुम्बकीय फ्लक्स में लगातार परिवर्तन है।
- (2) प्रेरित emf की दिशा लेंज के नियम (Lenz's law) से पता चलता है।
- (3) जब परिपथ में चुम्बकीय फ्लक्स में परिवर्तन के कारण परिपथ में प्रेरित emf।
- (4) परिपथ के साथ चुम्बकीय फ्लक्स अधिक होगा तो प्रेरित emf अधिक होगा।

Options :

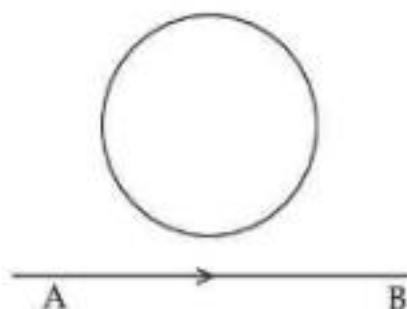
212807113053. 1
 212807113054. 2
 212807113055. 3
 212807113056. 4

Question Number : 105 Question Id : 21280728265 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	MCQ

The magnitude of electric current is increasing from A towards B. If there is any induced current in the loop as shown in the figure, its direction will be :



- (1) Clockwise
- (2) Anticlockwise
- (3) No induced current
- (4) Can not be predicted

Options :

212807113057, 1
 212807113058, 2
 212807113059, 3
 212807113060, 4

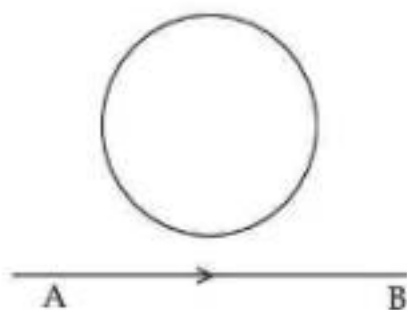
Question Number : 105 Question Id : 21280728265 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
 Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ

विद्युत धारा का परिमाण A से B की तरफ बढ़ता है। यदि पाश (लूप) जो चित्र में दर्शाया है में कोई प्रेरित धारा है, तो उसकी दिशा होगी :



- (1) घड़ी की दिशा में
- (2) घड़ी की विपरीत दिशा में
- (3) कोई प्रेरित धारा नहीं
- (4) अनुमान नहीं लगा सकते

Options :

212807113057, 1
 212807113058, 2
 212807113059, 3

Question Number : 106 Question Id : 21280728266 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	MCQ

A coil having 'n' turns and resistance 'R' Ω is connected with a galvanometer of resistance '4R' Ω . What is the induced current in the circuit when this combination (coil+galvanometer) is moved in time t from a magnetic flux ϕ_1 to ϕ_2 ?

(1) $\frac{-n(\phi_2 - \phi_1)}{4Rt}$

(2) $\frac{-n(\phi_2 - \phi_1)}{Rt}$

(3) $\frac{-n(\phi_2 - \phi_1)}{5Rt}$

(4) $\frac{-(\phi_2 - \phi_1)}{nRt}$

Options :

212807113061. 1

212807113062. 2

212807113063. 3

212807113064. 4

Question Number : 106 Question Id : 21280728266 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	MCQ

एक कुण्डली जिसमें 'n' फेरे हैं, और उसका प्रतिरोध 'R' Ω है जो कि एक गैल्वानोमीटर जिसका प्रतिरोध '4R' Ω है से जुड़ा हुआ है। जब संयोजन (कुण्डली+गैल्वानोमीटर) को चुंबकीय फ्लक्स ϕ_1 से ϕ_2 में 't' समय के लिए गतिशील किया जाएगा तो परिपथ में प्रेरित धारा क्या है :

(1) $\frac{-n(\phi_2 - \phi_1)}{4Rt}$

(2) $\frac{-n(\phi_2 - \phi_1)}{Rt}$

(3) $\frac{-n(\phi_2 - \phi_1)}{5Rt}$

(4) $\frac{-(\phi_2 - \phi_1)}{nRt}$

Options :

212807113061. 1

212807113062. 2

212807113063. 3

Question Number : 107 Question Id : 21280728267 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	MCQ

An emf of 0.5 V is developed in the secondary coil, when current in primary coil changes from 5.0 A to 2.0 A in 300 milliseconds. The mutual inductance of two coils would be :

- (1) 0.02 H
- (2) 0.03 H
- (3) 0.01 H
- (4) 0.05 H

Options :

212807113065. 1
 212807113066. 2
 212807113067. 3
 212807113068. 4

Question Number : 107 Question Id : 21280728267 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	MCQ

द्वितीयक कुण्डली में 0.5 V का एक emf उत्पन्न होता है, जब प्राथमिक, कुण्डली में धारा 300 ms में 5.0 A से परिवर्तित होकर 2.0 A हो जाती है। दोनों कुण्डलियों की अन्योन्य चुंबक होगी :

- (1) 0.02 H
- (2) 0.03 H
- (3) 0.01 H
- (4) 0.05 H

Options :

212807113065. 1
 212807113066. 2
 212807113067. 3
 212807113068. 4

Question Number : 108 Question Id : 21280728268 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	MCQ

A series AC circuit has a resistance $8\ \Omega$ and a reactance of $6\ \Omega$. The impedance of the circuit is :

- (1) 14 Ω
- (2) 10 Ω
- (3) $\frac{35}{6}\ \Omega$
- (4) 7 Ω

Options :

212807113069. 1
212807113070. 2
212807113071. 3
212807113072. 4

Question Number : 108 Question Id : 21280728268 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	MCQ

एक श्रेणी AC परिपथ में एक $8\ \Omega$ प्रतिरोध और एक $6\ \Omega$ का प्रतिघात है। परिपथ का प्रतिबाधा है :

- (1) $14\ \Omega$
(2) $10\ \Omega$
(3) $\frac{35}{6}\ \Omega$
(4) $7\ \Omega$

Options :

212807113069. 1
212807113070. 2
212807113071. 3
212807113072. 4

Question Number : 109 Question Id : 21280728269 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	MCQ

Match List - I with List - II.

List - I

List - II

- | | |
|---------------------|---------------------------------------------|
| (A) Infra red waves | (I) Eye surgery |
| (B) Microwaves | (II) $1\ \text{nm}$ to $10^{-3}\ \text{nm}$ |
| (C) Ultraviolet | (III) Heat waves |
| (D) X-rays | (IV) Produced by special vacuum tubes |

Choose the correct answer from the options given below :

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

Options :

212807113073. 1
212807113074. 2
212807113075. 3
212807113076. 4

Question Number : 109 Question Id : 21280728269 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	MCQ

सूची - I से सूची - II मिलाए :

सूची-I

सूची-II

- | | |
|-------------------|------------------------------------|
| (A) अवशक्त तरंगे | (I) नेत्र चिकित्सा |
| (B) सूक्ष्म तरंगे | (II) 1 nm से 10^{-3} nm |
| (C) पराबैंगनी | (III) गर्म तरंगे |
| (D) एक्स-किरणे | (IV) विशेष निर्वात नली से उत्पादित |

निम्नलिखित में से सही विकल्प का चयन करें :

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

Options :

212807113073. 1
212807113074. 2
212807113075. 3
212807113076. 4

Question Number : 110 Question Id : 21280728270 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	MCQ

Following are the wavelength of some constituents of the electromagnetic spectrum. The wavelength range that are used in Radar system for Aircraft navigation is :

- 1 mm to 700 nm
- 0.1 m to 1 mm
- 400 nm to 1 nm
- $< 10^{-3}$ nm
- > 1 m

Choose the correct answer from the options given below :

- (A) and (D) only
- (B) only
- (C) and (E) only
- (C) only

Options :

212807113077. 1
212807113078. 2
212807113079. 3
212807113080. 4

Question Number : 110 Question Id : 21280728270 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	MCQ

विद्युत चुंबकीय स्पेक्ट्रम के कुछ घटकों का तरंगदैर्घ्य निम्न है। वायुमान अन्वेषण के लिए RADAR प्रणाली में तरंगदैर्घ्य परास (Range) का उपयोग किया जाता है :

- (A) 1 mm to 700 nm
- (B) 0.1 m to 1 mm
- (C) 400 nm to 1 nm
- (D) $< 10^{-3}$ nm
- (E) > 1 m

निम्नलिखित में से सही विकल्प का चयन करें :

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

Options :

- 212807113077. 1
- 212807113078. 2
- 212807113079. 3
- 212807113080. 4

Question Number : 111 Question Id : 21280728271 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	MCQ

When a ray of light enters from denser medium to rarer medium, its velocity is doubled. The critical angle for total internal reflection will be :

- (1) 60°
- (2) 45°
- (3) 30°
- (4) 90°

Options :

- 212807113081. 1
- 212807113082. 2
- 212807113083. 3
- 212807113084. 4

Question Number : 111 Question Id : 21280728271 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	MCQ

जब एक प्रकाश कि किरण सघन माध्यम से विरल माध्यम में प्रवेश करती है, उसका वेग दुगुना हो जाता है। सम्पूर्ण आंतरिक परावर्तन के लिए क्रांतिक कोण होगा ;

- (1) 60°
- (2) 45°
- (3) 30°
- (4) 90°

Options :

212807113081. 1
212807113082. 2
212807113083. 3
212807113084. 4

Question Number : 112 Question Id : 21280728272 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	MCQ

Which of the following is/are responsible for the formation of Rainbow ?

- (A) Dispersion of light
- (B) Interference of light
- (C) Reflection of light
- (D) Refraction of light

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

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

Options :

212807113085. 1
212807113086. 2
212807113087. 3
212807113088. 4

Question Number : 112 Question Id : 21280728272 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	MCQ

इन्द्रधनुष बनने का इनमें से कौन सा उत्तरदायी है ?

- (A) प्रकाश का परिक्षेपण
- (B) प्रकाश का व्यतिकरण
- (C) प्रकाश का परावर्तन
- (D) प्रकाश का अपवर्तन

निम्नलिखित में से सही विकल्प का चयन करें :

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

Options :

212807113085. 1

212807113086. 2

212807113087. 3

212807113088. 4

Question Number : 113 Question Id : 21280728273 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None

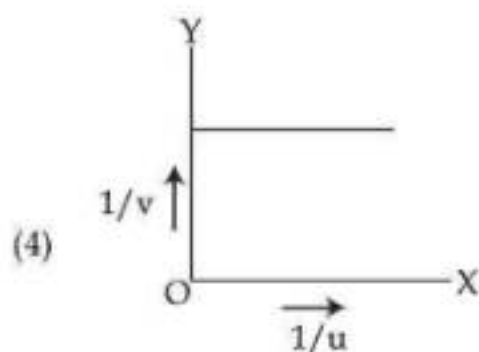
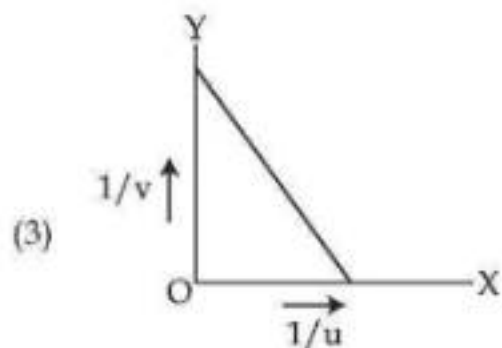
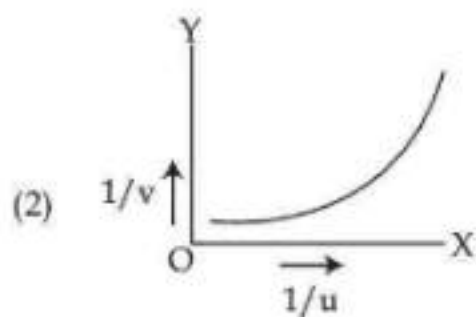
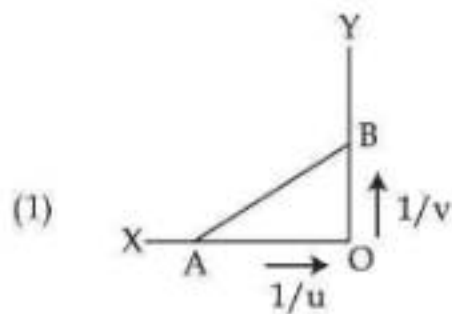
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ

The shape of graph between $1/u$ and $1/v$ in case of a convex lens is :



Options :

212807113089. 1

212807113090. 2

212807113091. 3

212807113092. 4

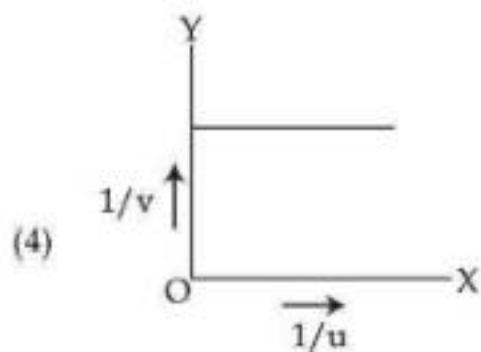
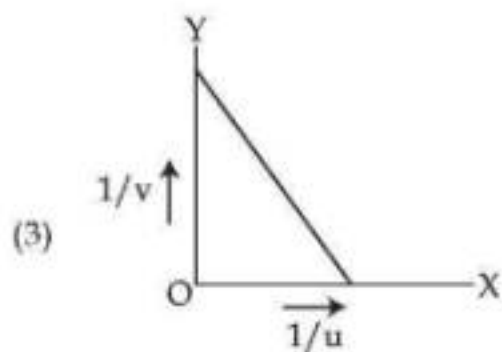
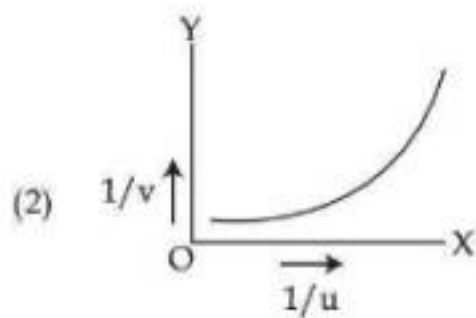
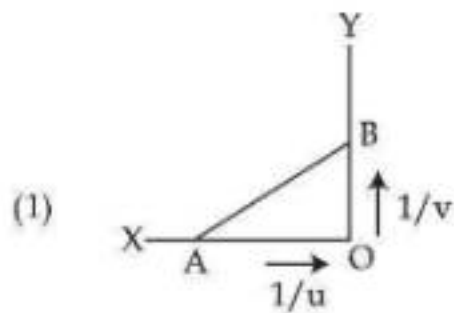
Question Number : 113 Question Id : 21280728273 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ

उत्तल लेंस के $1/u$ और $1/v$ के बीच के संबंध का आलेख को निरूपित किया जाता है।



Options :

- 212807113089. 1
- 212807113090. 2
- 212807113091. 3
- 212807113092. 4

Question Number : 114 Question Id : 21280728274 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	MCQ

At what speed should a galaxy move with respect to earth so that spectral line of 600.0 nm appears as 600.6 nm ?

- (1) $3 \times 10^6 \text{ m s}^{-1}$
- (2) $3 \times 10^5 \text{ m s}^{-1}$
- (3) $5 \times 10^6 \text{ m s}^{-1}$
- (4) $5 \times 10^5 \text{ m s}^{-1}$

Options :

212807113093. 1
 212807113094. 2
 212807113095. 3
 212807113096. 4

Question Number : 114 Question Id : 21280728274 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	MCQ

पृथ्वी के सापेक्ष आकाशगंगा की गति क्या होनी चाहिए कि 600.0 nm की स्पेक्ट्रल रेखा 600.6 nm प्रतीत हो ?

- (1) $3 \times 10^6 \text{ m s}^{-1}$
- (2) $3 \times 10^5 \text{ m s}^{-1}$
- (3) $5 \times 10^6 \text{ m s}^{-1}$
- (4) $5 \times 10^5 \text{ m s}^{-1}$

Options :

212807113093. 1
 212807113094. 2
 212807113095. 3
 212807113096. 4

Question Number : 115 Question Id : 21280728275 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	MCQ

Two thin lenses of power +3D and -1D are held in contact with each other. Focal length of the combination would be :

- (1) 5 m
- (2) 50 cm
- (3) 10 m
- (4) 100 cm

Options :

212807113097. 1
 212807113098. 2
 212807113099. 3

Question Number : 115 Question Id : 21280728275 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	MCQ

दो पतले लेंसों की क्षमता है $+3D$ और $-1D$, जो कि जुड़े हुए हैं। इनके संयोजन की फोकस दूरी होगी :

- (1) 5 m
- (2) 50 cm
- (3) 10 m
- (4) 100 cm

Options :

212807113097. 1
 212807113098. 2
 212807113099. 3
 212807113100. 4

Question Number : 116 Question Id : 21280728276 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	MCQ

Let us consider interference between two sources of intensities I and $4I$. What will be the intensity at points where the phase difference is π ?

- (1) I
- (2) $5I$
- (3) $9I$
- (4) 0

Options :

212807113101. 1
 212807113102. 2
 212807113103. 3
 212807113104. 4

Question Number : 116 Question Id : 21280728276 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	MCQ

माना की दो स्रोतों जिनकी तीव्रता I तथा $4I$ है, उनको व्यतिकरण हो रहा है। उस बिंदु पर तीव्रता क्या होगी जहाँ कलांतर π है ?

- (1) I
- (2) $5I$
- (3) $9I$
- (4) 0

Options :

212807113101. 1
 212807113102. 2
 212807113103. 3

Question Number : 117 Question Id : 21280728277 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	MCQ

Two polaroid P_1 and P_3 are placed such that their pass-axis are mutually perpendicular. Another polaroid P_2 is rotated between P_1 and P_3 . For what angle θ between P_1 and P_2 the intensity of light emerging from P_3 will be maximum ?

(1) $\frac{\pi}{3}$

(2) $\frac{\pi}{2}$

(3) $\frac{\pi}{4}$

(4) $\frac{\pi}{6}$

Options :

212807113105. 1

212807113106. 2

212807113107. 3

212807113108. 4

Question Number : 117 Question Id : 21280728277 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	MCQ

दो ध्रुवक P_1 तथा P_3 को इस प्रकार रखा गया है कि उनका पारित अक्ष परस्पर संभवत है। एक दूसरा ध्रुवक P_2 जो कि P_1 तथा P_3 के बीच घूर्णन कर रहा है। P_1 और P_3 के बीच किस कोण θ के लिए P_3 से निकलने वाला प्रकाश कि तीव्रता अधिकतम होगी ?

(1) $\frac{\pi}{3}$

(2) $\frac{\pi}{2}$

(3) $\frac{\pi}{4}$

(4) $\frac{\pi}{6}$

Options :

212807113105. 1

212807113106. 2

212807113107. 3

212807113108. 4

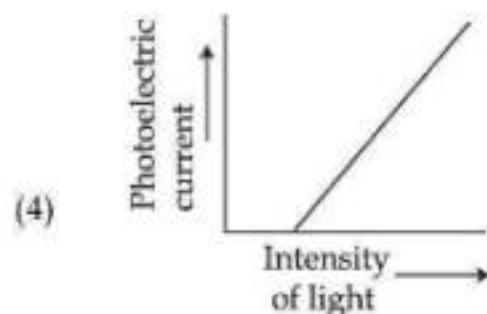
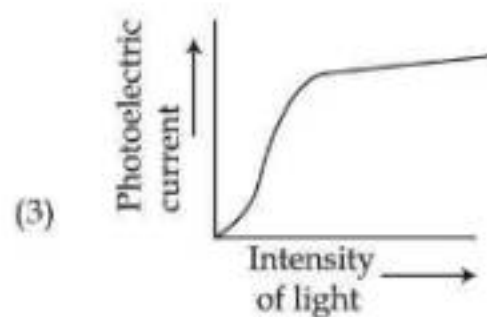
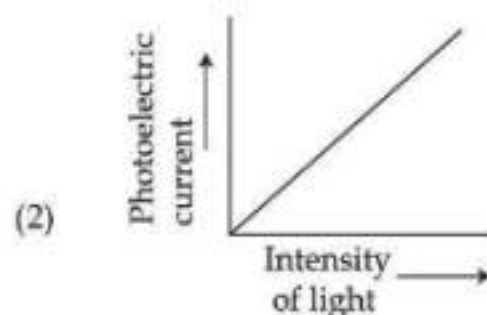
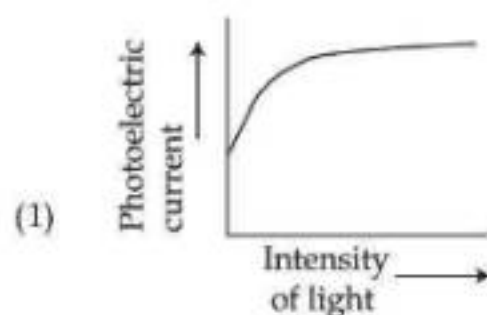
Question Number : 118 Question Id : 21280728278 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ

The graph showing correct variation of photo current with intensity of incident light :



Options :

212807113109. 1

212807113110. 2

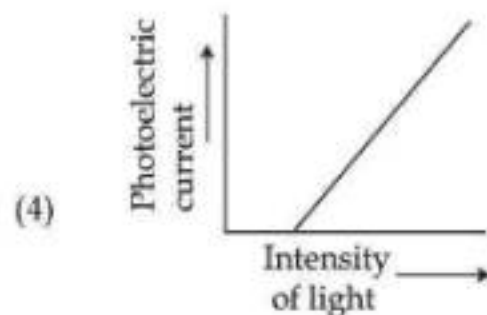
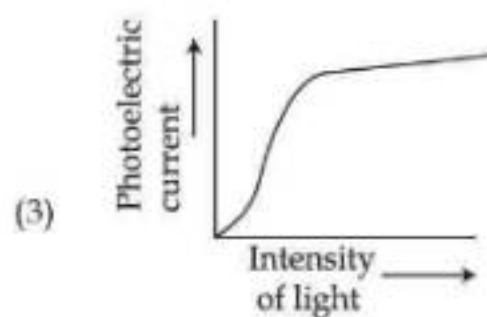
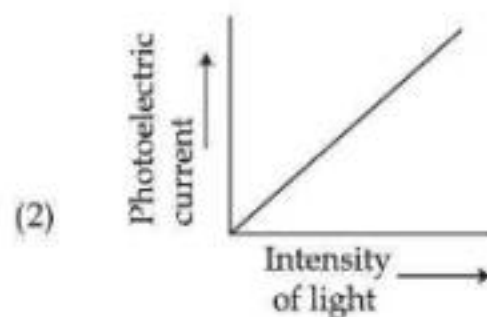
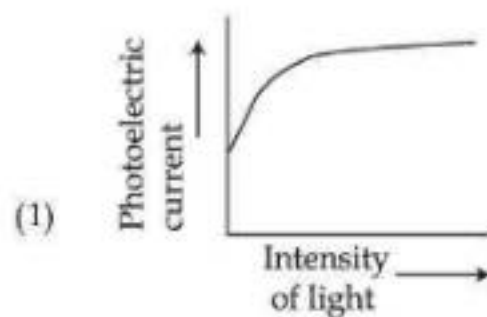
Question Number : 118 Question Id : 21280728278 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ

दिए गए आलेख में से कौन सा प्रकाश-वैद्युत धारा और आपतित प्रकाश की तीव्रता के बीच सही आलेख है :



Options :

212807113109. 1
212807113110. 2
212807113111. 3
212807113112. 4

Question Number : 119 Question Id : 21280728279 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	MCQ

Electron and Photon have same de Broglie wavelength, which of the following is true for their momentum :

- (1) Momentum of electron $<$ momentum of photon
- (2) Momentum of electron and photon is zero
- (3) Momentum of electron $=$ momentum of photon
- (4) Momentum of electron $>$ momentum of photon

Options :

212807113113. 1
212807113114. 2
212807113115. 3
212807113116. 4

Question Number : 119 Question Id : 21280728279 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	MCQ

इलेक्ट्रॉन और फोटॉन का डी-ब्रोग्ली तरंगदैर्घ्य समान है। इनके संवेग के लिए निम्नलिखित में से कौन सा कथन सत्य है :

- (1) इलेक्ट्रॉन का संवेग $<$ फोटॉन का संवेग
- (2) इलेक्ट्रॉन और फोटॉन का संवेग शून्य है
- (3) इलेक्ट्रॉन का संवेग $=$ फोटॉन का संवेग
- (4) इलेक्ट्रॉन का संवेग $>$ फोटॉन का संवेग

Options :

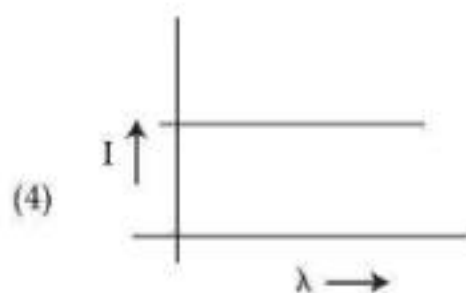
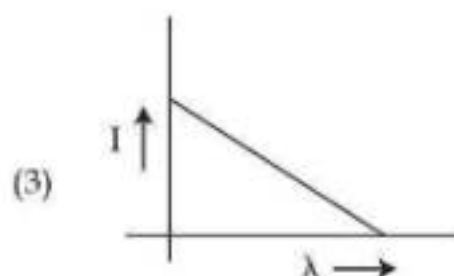
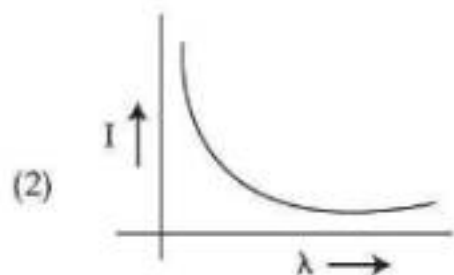
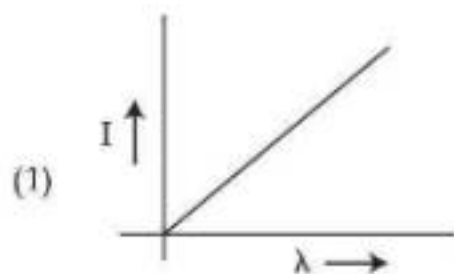
212807113113. 1
212807113114. 2
212807113115. 3
212807113116. 4

Question Number : 120 Question Id : 21280728280 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	MCQ

Which of the following graph correctly shows the relation between photoelectric current (I) and wavelength (λ) of incident radiation



Options :

212807113117. 1
212807113118. 2
212807113119. 3
212807113120. 4

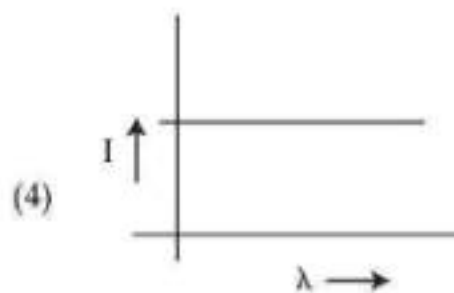
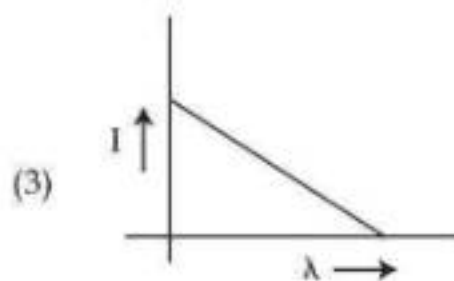
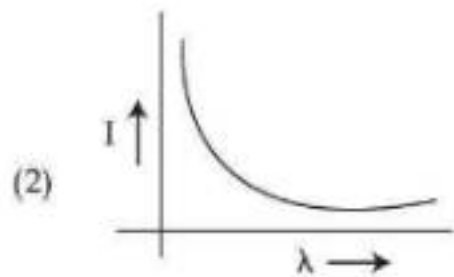
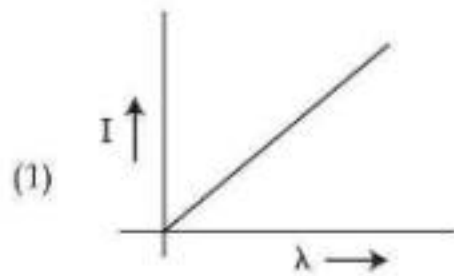
Question Number : 120 Question Id : 21280728280 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ

नीचे दिए गए आलेख में से प्रकाश विद्युत धारा (I) तथा आपतित विकिरण का तरंगदैर्घ्य (λ) में सही संबंध प्रदर्शित है :



Options :

- 212807113117. 1
- 212807113118. 2
- 212807113119. 3
- 212807113120. 4

Question Number : 121 Question Id : 21280728281 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	MCQ

Consider two different hydrogen atoms. The electron in each atom is in first excited state. According to Bohr's model, electrons will have :

- (1) different energies but the same orbital angular momentum
- (2) same energies and the same orbital angular momentum
- (3) same energies but different orbital angular momentum
- (4) different energies and no orbital angular momentum

Options :

212807113121. 1

212807113122. 2

212807113123. 3

212807113124. 4

Question Number : 121 Question Id : 21280728281 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	MCQ

दो हाइड्रोजन परमाणु, जिनके परमाणु उनके प्रथम उत्तेजित अवस्था में हैं। बोहर मॉडल के अनुसार, इलेक्ट्रॉन के पास :

- (1) विभिन्न ऊर्जा पर समान कक्षीय कोणीय संवेग।
- (2) समान ऊर्जा और समान कक्षीय कोणीय संवेग।
- (3) समान ऊर्जा पर विभिन्न कक्षीय कोणीय संवेग।
- (4) विभिन्न ऊर्जा और कोई कक्षीय कोणीय संवेग नहीं है।

Options :

212807113121. 1

212807113122. 2

212807113123. 3

212807113124. 4

Question Number : 122 Question Id : 21280728282 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	MCQ

Choose the correct statements :

- (A) A nuclide is represented as Z_X
- (B) Nuclids with same number of protons are called isotopes
- (C) α -ray scattering experiments allow determination of the nuclear radius
- (D) Nuclids with same number of neutrons are called isotones
- (E) The nuclear force distinguishes between neutron and proton

Choose the correct answer from the options given below :

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

Options :

212807113125. 1
212807113126. 2
212807113127. 3
212807113128. 4

Question Number : 122 Question Id : 21280728282 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	MCQ

इनमें से सही वाक्य चुने :

- (A) न्यूक्लाइड जो कि ${}^Z_A X$ द्वारा दिखाया जाता है।
(B) न्यूक्लाइड जिसके प्रोटोन की समान संख्या हो उसे समस्थानिक कहते हैं।
(C) α -किरण प्रकीर्णित प्रयोग जो नाभकीय क्रिया को बताता है।
(D) न्यूक्लाइड जिसमें समान न्यूट्रॉन की संख्या हो उसे क्रमरक्षी कहते हैं।
(E) नाभकीय बल जो न्यूट्रॉन तथा प्रोटोन में पहचान करता है।

निम्न विकल्पों में से सही का चयन करें :

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

Options :

212807113125. 1
212807113126. 2
212807113127. 3
212807113128. 4

Question Number : 123 Question Id : 21280728283 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	MCQ

Match List - I with List - II.

List - I

- (A) To slow down fast moving neutrons
- (B) A neutron or a proton
- (C) Slow neutrons
- (D) Neutron induced nuclear reaction

List - II

- (I) Thermal neutrons
- (II) Fission
- (III) Moderator
- (IV) Nucleon

Choose the correct answer from the options given below :

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

Options :

- 212807113129. 1
- 212807113130. 2
- 212807113131. 3
- 212807113132. 4

Question Number : 123 Question Id : 21280728283 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	MCQ

सूची- I से सूची - II को मिलाए :

सूची - I

- (A) तीव्र रूप से गतिशील न्यूट्रॉन को धीमा करने के लिए
- (B) न्यूट्रॉन या प्रोटोन
- (C) धीमी गति न्यूट्रॉन
- (D) न्यूट्रॉन से प्रेरित नाभकीय अभिक्रिया

सूची - II

- (I) तापीय - न्यूट्रॉन
- (II) विखण्डन
- (III) मंदक
- (IV) न्यूक्लियोन

नीचे दिए गए विकल्पों में से सही उत्तर का चयन करें :

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

Options :

- 212807113129. 1
- 212807113130. 2
- 212807113131. 3
- 212807113132. 4

Question Number : 124 Question Id : 21280728284 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	MCQ

A radioactive isotope phosphorous-32 has an initial activity $10 \mu\text{Ci}$ and has half life of 14 days. What is the activity of the source after 42 days ?

- (1) $1.25 \mu\text{Ci}$
- (2) $2.5 \mu\text{Ci}$
- (3) $5 \mu\text{Ci}$
- (4) $0.625 \mu\text{Ci}$

Options :

212807113133. 1
212807113134. 2
212807113135. 3
212807113136. 4

Question Number : 124 Question Id : 21280728284 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	MCQ

एक रेडियोधर्मिता समस्थानिक फास्फोरस-32 की प्रारम्भिक सक्रियता $10 \mu\text{Ci}$ और अर्धआयु 14 दिन है। 42 दिन बाद स्रोत की सक्रियता क्या होगी ?

- (1) $1.25 \mu\text{Ci}$
- (2) $2.5 \mu\text{Ci}$
- (3) $5 \mu\text{Ci}$
- (4) $0.625 \mu\text{Ci}$

Options :

212807113133. 1
212807113134. 2
212807113135. 3
212807113136. 4

Question Number : 125 Question Id : 21280728285 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	MCQ

Energy band gap is maximum in :

- (1) metals
- (2) semi-conductor
- (3) super conductor
- (4) insulator

Options :

212807113137. 1
212807113138. 2
212807113139. 3
212807113140. 4

Question Number : 125 Question Id : 21280728285 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	MCQ

ऊर्जा बैंड गैप किस में अधिकतम है ?

- (1) धातुएँ
- (2) अर्ध चालक
- (3) अति चालक
- (4) कुचालक

Options :

212807113137. 1
212807113138. 2
212807113139. 3
212807113140. 4

Question Number : 126 Question Id : 21280728286 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	MCQ

The forbidden energy gaps in conductors, semiconductors and insulators are $(E_g)_c$, $(E_g)_s$ and $(E_g)_i$ respectively. What is the relation among them ?

- (1) $(E_g)_c < (E_g)_s < (E_g)_i$
- (2) $(E_g)_c > (E_g)_s > (E_g)_i$
- (3) $(E_g)_c < (E_g)_s > (E_g)_i$
- (4) $(E_g)_c = (E_g)_s > (E_g)_i$

Options :

212807113141. 1
212807113142. 2
212807113143. 3
212807113144. 4

Question Number : 126 Question Id : 21280728286 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	MCQ

चालको, अर्धचालको और कुचालको में वर्जित ऊर्जा अंतराल क्रमशः $(E_g)_c$, $(E_g)_s$ और $(E_g)_i$ हैं। उनके बीच संबंध क्या है ?

- (1) $(E_g)_c < (E_g)_s < (E_g)_i$
- (2) $(E_g)_c > (E_g)_s > (E_g)_i$
- (3) $(E_g)_c < (E_g)_s > (E_g)_i$
- (4) $(E_g)_c = (E_g)_s > (E_g)_i$

Options :

212807113141. 1
212807113142. 2
212807113143. 3
212807113144. 4

Question Number : 127 Question Id : 21280728287 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	MCQ

Which of the following statements are **correct** for a transistor action ?

- (A) The input resistance depends upon the current I_c in the transistor
- (B) Collector currents is equal to the sum of base current and emitter current
- (C) The emitter junction is forward biased
- (D) The collector junction is reverse biased
- (E) Both the emitter junction as well as the collector junction are forward biased

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

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

Options :

212807113145. 1
212807113146. 2
212807113147. 3
212807113148. 4

Question Number : 127 Question Id : 21280728287 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	MCQ

संक्रमण क्रिया के लिए इनमें से कौन सा कथन सत्य है?

- (A) ट्रांजिस्टर में निवेशी प्रतिरोध धारा I_c पर निर्भर करता है।
- (B) संग्राहक धारा, आधार धारा और उत्सर्जक धारा के योग बराबर होता है।
- (C) उत्सर्जक सन्धि अग्रदिशिक बायस होता है।
- (D) संग्राहक सन्धि पश्चदिशिक बायस होता है।
- (E) आधार सन्धि तथा संग्राहक सन्धि दोनों अग्रदिशिक बायस है।

नीचे दिए गए विकल्पों में से **सही** उत्तर का चयन करें :

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

Options :

212807113145. 1
212807113146. 2
212807113147. 3
212807113148. 4

Question Number : 128 Question Id : 21280728288 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None

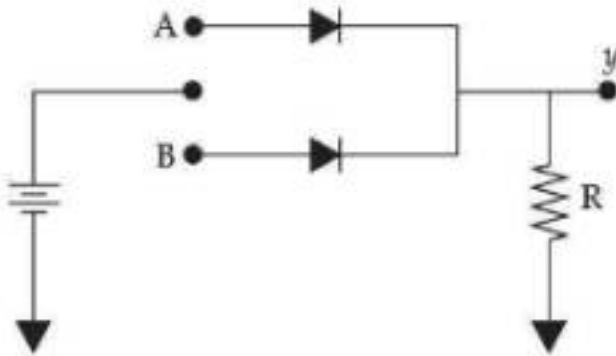
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ

The logic gate realised using p-n junction diodes in the given figure is :



- (1) OR gate
- (2) NOT gate
- (3) AND gate
- (4) NAND gate

Options :

212807113149. 1

212807113150. 2

212807113151. 3

212807113152. 4

Question Number : 128 Question Id : 21280728288 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None

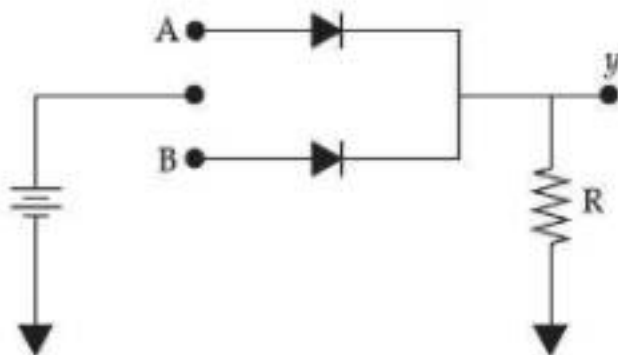
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Wrong Marks : 1

Question Key Details :

Key	Value
Comprehension	MCQ

p-n सन्धि डायोड जो चित्र में उपयोग किया गया है कौनसा लॉजिक गेट बनता है ?



- (1) OR गेट
- (2) NOT गेट
- (3) AND गेट
- (4) NAND गेट

Options :

212807113149. 1
212807113150. 2
212807113151. 3
212807113152. 4

Question Number : 129 Question Id : 21280728289 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	MCQ

Which of the following is a transducer ?

- (A) Loudspeaker
- (B) Amplifier
- (C) Rectifier
- (D) Microphone

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

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

Options :

212807113153. 1
212807113154. 2
212807113155. 3
212807113156. 4

Question Number : 129 Question Id : 21280728289 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	MCQ

'ट्रान्सड्यूसर' निम्न में से कौन सा है?

- (A) लाऊड स्पीकर
- (B) प्रवर्धक
- (C) दिष्टकारी
- (D) माइक्रोफोन

नीचे दिए गए विकल्पों में से सही उत्तर का चयन करें :

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

Options :

- 212807113153. 1
- 212807113154. 2
- 212807113155. 3
- 212807113156. 4

Question Number : 130 Question Id : 21280728290 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	MCQ

The correct mathematical expression for amplitude modulated wave is :

- (1) $A_c \sin \omega_c t$
- (2) $A_m \sin \omega_m t$
- (3) $(A_c + A_m \sin \omega_m t) \sin \omega_c t$
- (4) $A_c \sin \omega_c t + A_m \sin \omega_m t$

Options :

- 212807113157. 1
- 212807113158. 2
- 212807113159. 3
- 212807113160. 4

Question Number : 130 Question Id : 21280728290 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	MCQ

आयाम मॉडुलेट तरंग का सही बीच गणित सूत्र है :

- (1) $A_c \sin \omega_c t$
- (2) $A_m \sin \omega_m t$
- (3) $(A_c + A_m \sin \omega_m t) \sin \omega_c t$
- (4) $A_c \sin \omega_c t + A_m \sin \omega_m t$

Options :

212807113157. 1
212807113158. 2
212807113159. 3
212807113160. 4

Question Number : 131 Question Id : 21280728291 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	MCQ

A vertical electric field of magnitude $4.9 \times 10^5 \text{ NC}^{-1}$ just prevents a water droplet of mass 0.1 g from falling. What is the charge on the droplet? Take acceleration due to gravity 9.8 ms^{-2} .

- (1) $2.0 \times 10^{-9} \text{ C}$
(2) $2.0 \times 10^{-6} \text{ C}$
(3) $5.0 \times 10^5 \text{ C}$
(4) $5.0 \times 10^6 \text{ C}$

Options :

212807113161. 1
212807113162. 2
212807113163. 3
212807113164. 4

Question Number : 131 Question Id : 21280728291 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	MCQ

एक उद्वाधर विद्युत क्षेत्र का माप $4.9 \times 10^5 \text{ NC}^{-1}$ जो 0.1 g जल की बूंद को गिरने से बचाता है। तो बूंद पर आवेश क्या होगा? (गुरुत्व त्वरण $= 9.8 \text{ ms}^{-2}$)

- (1) $2.0 \times 10^{-9} \text{ C}$
(2) $2.0 \times 10^{-6} \text{ C}$
(3) $5.0 \times 10^5 \text{ C}$
(4) $5.0 \times 10^6 \text{ C}$

Options :

212807113161. 1
212807113162. 2
212807113163. 3
212807113164. 4

Question Number : 132 Question Id : 21280728292 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	MCQ

Which of the following statements are correct ?

- (A) The resistivity of a semiconductor decreases with increasing temperature.
- (B) The potentiometer is unaffected by the internal resistance of the source.
- (C) In ionic crystals and electrolytic liquids electrons carry the electric current.
- (D) Ohm's law fails if V depends on I non-linearly.
- (E) Kirchhoff's rules are used for analysis of electric circuits.

Choose the correct answer from the options given below :

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

Options :

212807113165. 1
212807113166. 2
212807113167. 3
212807113168. 4

Question Number : 132 Question Id : 21280728292 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	MCQ

निम्न में से कौन सा कथन सही है ?

- (A) तापमान में वृद्धि के साथ अर्धचालक कि प्रतिरोधकता घटती है।
- (B) विभवमापी पर स्रोत के आंतरिक प्रतिरोध का कोई प्रभाव नहीं पड़ता है।
- (C) आयनिक क्रिस्टली, इलेक्ट्रोलेटिक द्रवों, इलेक्ट्रॉनों विद्युत धारा का वहन करती है।
- (D) 'ओम' का नियम लागू नहीं होता है यदि V, I पर आरेखीय रूप से निर्भर करता है।
- (E) 'किरचौफ' नियम का उपयोग विद्युत परिपथ में होता है।

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

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

Options :

212807113165. 1
212807113166. 2
212807113167. 3
212807113168. 4

Question Number : 133 Question Id : 21280728293 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	MCQ

For a medium with permittivity (ϵ) and permeability (μ), the speed of light (v) is given by :

(1) $v = \sqrt{\frac{\mu}{\epsilon}}$

(2) $v = \sqrt{\mu\epsilon}$

(3) $v = \frac{1}{\sqrt{\mu\epsilon}}$

(4) $v = \sqrt{\frac{\epsilon}{\mu}}$

Options :

212807113169. 1

212807113170. 2

212807113171. 3

212807113172. 4

Question Number : 133 Question Id : 21280728293 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	MCQ

एक माध्यम के लिए जिसका परावैद्युतांक (ϵ) और पारगम्यता (μ) के लिए प्रकाश की गति को (v) को लिखा गया है :

(1) $v = \sqrt{\frac{\mu}{\epsilon}}$

(2) $v = \sqrt{\mu\epsilon}$

(3) $v = \frac{1}{\sqrt{\mu\epsilon}}$

(4) $v = \sqrt{\frac{\epsilon}{\mu}}$

Options :

212807113169. 1

212807113170. 2

212807113171. 3

212807113172. 4

Question Number : 134 Question Id : 21280728294 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	MCQ

A parallel beam of monochromatic light of wavelength 460 nm passes through a long slit of width 0.1 mm. What is the angular divergence in which most of the light is diffracted ?

- (1) 2.3×10^{-3} rad
- (2) 4.6×10^{-3} rad
- (3) 9.2×10^{-3} rad
- (4) 9.2×10^{-6} rad

Options :

212807113173. 1
212807113174. 2
212807113175. 3
212807113176. 4

Question Number : 134 Question Id : 21280728294 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	MCQ

एक 460 nm तरंगदैर्घ्य वाला एक वर्णी प्रकाश का समांतर पुन्ज जो कि 0.1 mm चौड़ाई की लम्बी झिरी से गुजरती है। कोणीय प्रवणता (angular divergence) क्या है जिसमें अधिकतर प्रकाश का विवर्तन होता है ?

- (1) 2.3×10^{-3} rad
- (2) 4.6×10^{-3} rad
- (3) 9.2×10^{-3} rad
- (4) 9.2×10^{-6} rad

Options :

212807113173. 1
212807113174. 2
212807113175. 3
212807113176. 4

Question Number : 135 Question Id : 21280728295 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	MCQ

What is the wavelength of light for the least energetic photon emitted in the Lyman series of the hydrogen atom spectrum lines ?

(Take $h = 6.63 \times 10^{-34}$ Js ; $c = 3 \times 10^8$ ms⁻¹ ; $e = 1.6 \times 10^{-19}$ C)

- (1) 122 nm
- (2) 12.2 nm
- (3) 1.22 nm
- (4) 10.2 nm

Options :

212807113177. 1
212807113178. 2
212807113179. 3
212807113180. 4

Question Number : 135 Question Id : 21280728295 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	MCQ

सबसे कम ऊर्जा वाले फोटॉन जो कि हाइड्रोजन परमाणु के लायमैन श्रेणी से उत्सर्जित हो, उस प्रकाश का तरंगदैर्घ्य क्या होगा ?

($h = 6.63 \times 10^{-34} \text{ Js}$; $c = 3 \times 10^8 \text{ ms}^{-1}$; $e = 1.6 \times 10^{-19} \text{ C}$ लीजिए)

- (1) 122 nm
- (2) 12.2 nm
- (3) 1.22 nm
- (4) 10.2 nm

Options :

212807113177. 1

212807113178. 2

212807113179. 3

212807113180. 4