

NTA CUET UG May and June 2025

Application No	
Candidate Name	
Roll No.	
Test Date	19/05/2025
Test Time	9:00 AM - 12:00 PM
Subject	19MayShift1 Subject Combination 1

Section : Mathematics Section A

Q.1

Value of $\int \frac{2}{(x-3)\sqrt{x+1}} dx$ is: (Here C is an arbitrary constant)

1. $\log \left| \frac{x-3}{x+1} \right| + C$

2. $\log \left| \frac{\sqrt{x-1}-2}{\sqrt{x+1}} \right| + C$

3. $\frac{1}{2} \log \left| \frac{\sqrt{x+1}-1}{\sqrt{x+1}+1} \right| + C$

4. $\log \left| \frac{\sqrt{x+1}-2}{\sqrt{x+1}+2} \right| + C$

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 226895685139

Option 1 ID : 2268952656286

Option 2 ID : 2268952656287

Option 3 ID : 2268952656288

Option 4 ID : 2268952656289

Status : Answered

Chosen Option : 1

Q.2

The maximum value of $\sin x \cdot \cos x$ is:

1. 1
2. $\frac{1}{2}$
3. $\frac{1}{4}$
4. $\sqrt{2}$

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 226895685138

Option 1 ID : 2268952656282

Option 2 ID : 2268952656283

Option 3 ID : 2268952656284

Option 4 ID : 2268952656285

Status : Answered

Chosen Option : 1

Q.3

The general solution of the differential equation $\frac{dy}{dx} = e^{ax+by}$ is: (Here C is an arbitrary constant)

1. $be^{-by} + ae^{ax} = C$
2. $-be^{-by} + ae^{ax} = C$
3. $ae^{-by} + be^{ax} = C$
4. $e^{ax} + e^{by} = C$

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 226895685142

Option 1 ID : 2268952656298

Option 2 ID : 2268952656299

Option 3 ID : 2268952656300

Option 4 ID : 2268952656301

Status : Answered

Chosen Option : 2

Q.4

The difference of two different skew-symmetric matrices is:

1. Null matrix
2. Identity matrix
3. Symmetric matrix
4. Skew-symmetric matrix

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 226895685132

Option 1 ID : 2268952656258

Option 2 ID : 2268952656259

Option 3 ID : 2268952656260

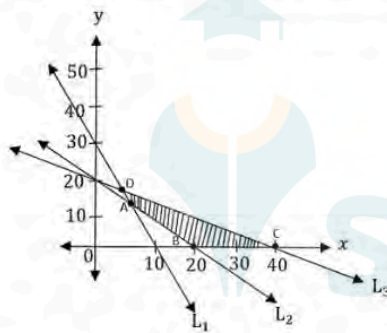
Option 4 ID : 2268952656261

Status : Answered

Chosen Option : 2

Q.5

Which one of the following inequalities is redundant for the shaded feasible region (ABCD) shown below?



1. $x + 2y \leq 40$
2. $3x + y \geq 30$
3. $4x + 3y \leq 60$
4. $x \geq 0, y \geq 0$

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 226895685145

Option 1 ID : 2268952656310

Option 2 ID : 2268952656311

Option 3 ID : 2268952656312

Option 4 ID : 2268952656313

Status : Answered

Chosen Option : 3

Q.6

If A and B are square matrices of the same order 3, such that $\det(A) = 3$ and $AB = 3I$, where I is an identity matrix of order 3. Then the value of $\det(B)$ is:

1. 3
2. 27
3. 9
4. 1

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 226895685134

Option 1 ID : 2268952656266

Option 2 ID : 2268952656267

Option 3 ID : 2268952656268

Option 4 ID : 2268952656269

Status : Answered

Chosen Option : 4

Q.7

If $e^x + e^y = e^{x+y}$, then $\frac{dy}{dx} =$

1. e^{x-y}
2. e^{y-x}
3. $-e^{y-x}$
4. e^{x+y}

Options 1. 1

2. 2
3. 3
4. 4



Question Type : MCQ

Question ID : 226895685136

Option 1 ID : 2268952656274

Option 2 ID : 2268952656275

Option 3 ID : 2268952656276

Option 4 ID : 2268952656277

Status : Answered

Chosen Option : 4

Q.8

If $A = \begin{bmatrix} 2 & 1 & 3 \\ 4 & -3 & 5 \end{bmatrix}$ and $B = \begin{bmatrix} -2 & 3 \\ 4 & -5 \\ 1 & 2 \end{bmatrix}$, then which of the following statements are TRUE?

- (A) AB is defined
- (B) AB and BA both are defined and $AB = I$, where I is an identity matrix of order 2
- (C) BA is defined
- (D) AB and BA both are defined and $AB = BA$

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

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

Options 1. 1

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

Question Type : MCQ

Question ID : 226895685135

Option 1 ID : 2268952656270

Option 2 ID : 2268952656271

Option 3 ID : 2268952656272

Option 4 ID : 2268952656273

Status : Answered

Chosen Option : 4

Q.9

The area (in sq. units) bounded by the parabola $y^2 = 4ax$, its latus rectum and the x -axis in the first quadrant is:

- 1. $\frac{1}{3}a^2$
- 2. $\frac{2}{3}a^2$
- 3. $\frac{4}{3}a^2$
- 4. $\frac{8}{3}a^2$

Options 1. 1

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

Question Type : MCQ

Question ID : 226895685141

Option 1 ID : 2268952656294

Option 2 ID : 2268952656295

Option 3 ID : 2268952656296

Option 4 ID : 2268952656297

Status : Answered

Chosen Option : 3

Q.10

Match **List-I** with **List-II**

List-I	List-II
Differential Equation	Order and degree of differential equation
(A) $\frac{d^2y}{dx^2} + 2\left(\frac{dy}{dx}\right)^2 = e^{\frac{dy}{dx}} + 1$	(I) Order = 1, Degree = 2
(B) $\left(\frac{d^2y}{dx^2}\right)^2 + 4\left(\frac{dy}{dx}\right)^3 = e^y - 1$	(II) Order = 2, Degree = 1
(C) $3\left(\frac{dy}{dx}\right) + 4y + e^y = \frac{dx}{dy}$	(III) Order = 2, Degree = 2
(D) $\frac{d^2y}{dx^2} + 3\left(\frac{dy}{dx}\right) = \left(e^y + \frac{dy}{dx}\right)^2$	(IV) Order = 2, Degree = Not defined

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

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

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 226895685143

Option 1 ID : 2268952656302

Option 2 ID : 2268952656303

Option 3 ID : 2268952656304

Option 4 ID : 2268952656305

Status : Answered

Chosen Option : 3

Q.11

If $A = \begin{bmatrix} 1 & 1 \\ 0 & 1 \end{bmatrix}$, then the value of A^{20} is:

1. $\begin{bmatrix} 1 & 1 \\ 0 & 1 \end{bmatrix}$

2. $\begin{bmatrix} 20 & 20 \\ 0 & 20 \end{bmatrix}$

3. $\begin{bmatrix} 1 & 20 \\ 0 & 1 \end{bmatrix}$

4. $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$

Options 1. 1

2. 2

3. 3

4. 4

Question Type : **MCQ**Question ID : **226895685133**Option 1 ID : **2268952656262**Option 2 ID : **2268952656263**Option 3 ID : **2268952656264**Option 4 ID : **2268952656265**Status : **Answered**Chosen Option : **2**

Q.12

Function $f(x) = x^3 - 3x + 3$ is

- (A) Increasing in the interval $(-1, 1)$
- (B) Increasing in the interval $(1, \infty)$
- (C) Decreasing in the interval $(-1, 1)$
- (D) Increasing in the interval $(-\infty, -1) \cup (1, \infty)$

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

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

Options 1. 1

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

Question Type : MCQ

Question ID : 226895685137

Option 1 ID : 2268952656278

Option 2 ID : 2268952656279

Option 3 ID : 2268952656280

Option 4 ID : 2268952656281

Status : Answered

Chosen Option : 2

Q.13

Let X denotes the number of hours a person uses a mobile and the probability distribution of X is as

X	0	1	2	3	4
P(X)	0.1	K	2K	2K	K

Then the value of K is

- 1. 0.15
- 2. 0.20
- 3. 0.12
- 4. 0.16

Options 1. 1

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

Question Type : MCQ

Question ID : 226895685144

Option 1 ID : 2268952656306

Option 2 ID : 2268952656307

Option 3 ID : 2268952656308

Option 4 ID : 2268952656309

Status : Answered

Chosen Option : 4

Q.14

The value of $\int_0^1 x e^x dx$ is:

1. $\frac{1}{e}$
2. e
3. 1
4. -1

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 226895685140

Option 1 ID : 2268952656290

Option 2 ID : 2268952656291

Option 3 ID : 2268952656292

Option 4 ID : 2268952656293

Status : Answered

Chosen Option : 4

Q.15

Consider the Linear Programming Problem

Maximize $z = x + y$

Subject to the constraints $x - y \leq -1$, $x \geq y$, $x \geq 0$, $y \geq 0$

Then which one of the following is TRUE?

1. Maximum $z = 3$ at (1, 2)
2. There is no solution
3. Maximum $z = 15$ at (7, 8)
4. Maximum $z = 10$ at all points on the line $x - y = -1$

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 226895685146

Option 1 ID : 2268952656314

Option 2 ID : 2268952656315

Option 3 ID : 2268952656316

Option 4 ID : 2268952656317

Status : Answered

Chosen Option : 1

Section : Mathematics Section B1 Core

Q.16

Match **List-I** with **List-II**

Let A and B be any two events

List-I	List-II
(A) $P(A^c)$	(I) $\frac{P(A \cap B)}{P(A)} ; P(A) \neq 0$
(B) $P(\Phi)$	(II) $\frac{P(A \cap B)}{P(B)} ; P(B) \neq 0$
(C) $P(A B)$	(III) $1 - P(A)$
(D) $P(B A)$	(IV) 0

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

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

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 226895685179

Option 1 ID : 2268952656446

Option 2 ID : 2268952656447

Option 3 ID : 2268952656448

Option 4 ID : 2268952656449

Status : Not Answered

Chosen Option : --

Q.17

If C_{ij} represents the cofactor of element a_{ij} of the matrix $A = \begin{bmatrix} 2 & -1 & 3 \\ 1 & 2 & 0 \\ 4 & 1 & 5 \end{bmatrix}$ then the value of $C_{23} + C_{31} - C_{22}$ is

1. 14
2. -4
3. -10
4. 8

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 226895685151

Option 1 ID : 2268952656334

Option 2 ID : 2268952656335

Option 3 ID : 2268952656336

Option 4 ID : 2268952656337

Status : Not Answered

Chosen Option : --

Q.18

Match List-I with List-II

List-I	List-II
(A) $\cos^{-1}x + \cos^{-1}(-x)$	(I) $\frac{\pi}{3}$
(B) $\operatorname{cosec}^{-1}(-x) + \sec^{-1}(-x)$	(II) $-\frac{\pi}{3}$
(C) $\tan^{-1}\sqrt{3} - \sec^{-1}(-2)$	(III) π
(D) $\tan^{-1}\left(\tan\frac{4\pi}{3}\right)$	(IV) $\frac{\pi}{2}$

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

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

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 226895685149

Option 1 ID : 2268952656326

Option 2 ID : 2268952656327

Option 3 ID : 2268952656328

Option 4 ID : 2268952656329

Status : Not Answered

Chosen Option : --

Q.19

If $\begin{vmatrix} 1 & -2 & 5 \\ 2 & a & -1 \\ 0 & 4 & 2a \end{vmatrix} = 86$, then product of all values of a is:

1. 21
2. - 21
3. 10
4. - 4

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 226895685153

Option 1 ID : 2268952656342

Option 2 ID : 2268952656343

Option 3 ID : 2268952656344

Option 4 ID : 2268952656345

Status : Not Answered

Chosen Option : --

Q.20

The relation R in $\mathbb{R}$ (set of real numbers) is defined by $R = \{(a, b) : a \leq b^3\}$, then R is

1. Reflexive relation
2. Transitive but not symmetric
3. Reflexive and transitive but not symmetric
4. Neither reflexive nor symmetric nor transitive

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 226895685147

Option 1 ID : 2268952656318

Option 2 ID : 2268952656319

Option 3 ID : 2268952656320

Option 4 ID : 2268952656321

Status : Not Answered

Chosen Option : --

Q.21

The semi vertical angle of a right circular cone of maximum volume of a given slant height is

1. $\tan^{-1} 2$
2. $\sin^{-1} \left(\frac{1}{3} \right)$
3. $\cos^{-1} \left(\frac{1}{\sqrt{3}} \right)$
4. $\sin^{-1} \left(\frac{1}{\sqrt{3}} \right)$

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 226895685160

Option 1 ID : 2268952656370

Option 2 ID : 2268952656371

Option 3 ID : 2268952656372

Option 4 ID : 2268952656373

Status : Not Answered

Chosen Option : --

Q.22

If a matrix P is both symmetric and skew-symmetric, then

1. P is a diagonal matrix
2. P is a square matrix
3. P is a zero matrix
4. P is an identity matrix

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 226895685152

Option 1 ID : 2268952656338

Option 2 ID : 2268952656339

Option 3 ID : 2268952656340

Option 4 ID : 2268952656341

Status : Not Answered

Chosen Option : --

Q.23

A letter is known to have come either from KOLKATA or TATANAGAR. On the envelope just two consecutive letters TA are visible. The probability that letter has come from TATANAGAR is

1. $\frac{2}{5}$
2. $\frac{3}{5}$
3. $\frac{1}{4}$
4. $\frac{2}{3}$

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 226895685180

Option 1 ID : 2268952656450

Option 2 ID : 2268952656451

Option 3 ID : 2268952656452

Option 4 ID : 2268952656453

Status : Not Answered

Chosen Option : --

Q.24

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

1. $\frac{1}{9}$ units
2. 81 units
3. 9 units
4. 7 units

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 226895685175

Option 1 ID : 2268952656430

Option 2 ID : 2268952656431

Option 3 ID : 2268952656432

Option 4 ID : 2268952656433

Status : Not Answered

Chosen Option : --

Q.25

If $\vec{a} = \hat{i} + \hat{k}$, $\vec{b} = \hat{j} - \hat{k}$ and $\vec{c} = \hat{i} + \hat{j} + \hat{k}$ such that $\vec{r} \times \vec{b} = \vec{c} \times \vec{b}$ and $\vec{r} \cdot \vec{a} = 0$, then $\vec{r}$ is:

1. $\hat{i} + 3\hat{j} - \hat{k}$
2. $\hat{i} - 3\hat{j} + \hat{k}$
3. $3\hat{i} + \hat{j} - \hat{k}$
4. $\hat{i} - \hat{j} + 3\hat{k}$

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 226895685169

Option 1 ID : 2268952656406

Option 2 ID : 2268952656407

Option 3 ID : 2268952656408

Option 4 ID : 2268952656409

Status : Not Answered

Chosen Option : --

Q.26

Solution of the differential equation

$\frac{dy}{dx} = \sqrt{1+x^2+y^2+x^2y^2}$ is : (Here C is an arbitrary constant)

1. $\log \left| \frac{y + \sqrt{1+y^2}}{x + \sqrt{1+x^2}} \right| = C$

2. $\log \left| \frac{y + \sqrt{1+y^2}}{\sqrt{x + \sqrt{1+x^2}}} \right| = C$

3. $\log \left| \frac{y + \sqrt{1+y^2}}{\sqrt{x + \sqrt{1+x^2}}} \right| = \frac{x}{2} \sqrt{1+x^2} + C$

4. $\log \left| \frac{y + \sqrt{1+y^2}}{x + \sqrt{1+x^2}} \right| = \frac{x}{2} \sqrt{1+x^2} + C$

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 226895685167

Option 1 ID : 2268952656398

Option 2 ID : 2268952656399

Option 3 ID : 2268952656400

Option 4 ID : 2268952656401

Status : Not Answered

Chosen Option : --

Q.27

If matrix $A = \begin{bmatrix} p & -3 \\ -4 & p \end{bmatrix}$ and $|A^3| = 64$, then the value of p is:

1. ± 1
2. ± 2
3. ± 3
4. ± 4

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 226895685154

Option 1 ID : 2268952656346

Option 2 ID : 2268952656347

Option 3 ID : 2268952656348

Option 4 ID : 2268952656349

Status : Not Answered

Chosen Option : --

Q.28

Distance of the point (2, 4, -1) from the line $\frac{10+2x}{2} = \frac{y+3}{4} = \frac{6-z}{9}$ is

1. $\sqrt{14}$ units
2. 13 units
3. 7 units
4. $\sqrt{7}$ units

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 226895685173

Option 1 ID : 2268952656422

Option 2 ID : 2268952656423

Option 3 ID : 2268952656424

Option 4 ID : 2268952656425

Status : Not Answered

Chosen Option : --

Q.29

If A and B are independent events, then which of the following statements are **TRUE**?

- (A) $P(A \cap B) = P(A).P(B)$
- (B) $P(A \cap B) = P(A) - P(B)$
- (C) $P(A \cup B) = P(A) + P(B) - P(A).P(B)$
- (D) $P(A \cap B) = P(A), P(B|A)$

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

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

Options 1. 1

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

Question Type : **MCQ**Question ID : **226895685178**Option 1 ID : **2268952656442**Option 2 ID : **2268952656443**Option 3 ID : **2268952656444**Option 4 ID : **2268952656445**Status : **Not Answered**

Chosen Option : --

Q.30

A function $f: \mathbb{R} \rightarrow \{x \in \mathbb{R} : -1 < x < 1\}$ is defined as $f(x) = \frac{x}{1 + |x|}$, then f is:

- 1. neither one-one nor onto
- 2. one-one only
- 3. onto only
- 4. both one-one and onto

Options 1. 1

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

Question Type : **MCQ**Question ID : **226895685148**Option 1 ID : **2268952656322**Option 2 ID : **2268952656323**Option 3 ID : **2268952656324**Option 4 ID : **2268952656325**Status : **Not Answered**

Chosen Option : --

Q.31

Bag A contains 2 unbiased and 3 biased coins whereas Bag B contains 3 unbiased and 2 biased coins. A bag is selected at random and 2 coins are taken out simultaneously. The probability, that both coins are unbiased is:

1. $\frac{1}{5}$
2. $\frac{1}{10}$
3. $\frac{2}{5}$
4. $\frac{3}{10}$

Options

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

Question Type : **MCQ**Question ID : **226895685181**Option 1 ID : **2268952656454**Option 2 ID : **2268952656455**Option 3 ID : **2268952656456**Option 4 ID : **2268952656457**Status : **Not Answered**

Chosen Option : --

Q.32

If the line $\frac{-x+1}{3} = \frac{-y-2}{-2k} = \frac{z+3}{2}$ and $\frac{-1+x}{3k} = \frac{-1+y}{1} = \frac{-z+6}{5}$ are perpendicular, then the value of k is:

1. $\frac{10}{7}$
2. $-\frac{10}{7}$
3. $\frac{1}{2}$
4. $\frac{4}{3}$

Options

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

Question Type : **MCQ**Question ID : **226895685174**Option 1 ID : **2268952656426**Option 2 ID : **2268952656427**Option 3 ID : **2268952656428**Option 4 ID : **2268952656429**Status : **Not Answered**

Chosen Option : --

Q.33

$\int \tan^{-1} \sqrt{x} \, dx$ equals to: (Here C is an arbitrary constant)

1. $(x + 1) \tan^{-1} \sqrt{x} - \sqrt{x} + C$

2. $x \tan^{-1} \sqrt{x} - \sqrt{x} + C$

3. $\sqrt{x} - x \tan^{-1} \sqrt{x} + C$

4. $\sqrt{x} - (x + 1) \tan^{-1} \sqrt{x} + C$

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 226895685164

Option 1 ID : 2268952656386

Option 2 ID : 2268952656387

Option 3 ID : 2268952656388

Option 4 ID : 2268952656389

Status : Not Answered

Chosen Option : --

Q.34

The minimum value of the function $f(x) = x^3 + (10 - x)^3$ occurs at:

1. $x = 0$

2. $x = 3$

3. $x = 5$

4. $x = \frac{10}{3}$

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 226895685161

Option 1 ID : 2268952656374

Option 2 ID : 2268952656375

Option 3 ID : 2268952656376

Option 4 ID : 2268952656377

Status : Not Answered

Chosen Option : --

Q.35

The area (in square units) of the region bounded by the curves $3y^2 = ax$, $y = a$, $a > 0$ and y -axis is:

1. a
2. $3a$
3. $2a^2$
4. a^2

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 226895685166

Option 1 ID : 2268952656394

Option 2 ID : 2268952656395

Option 3 ID : 2268952656396

Option 4 ID : 2268952656397

Status : Not Answered

Chosen Option : --

Q.36

If $2f(x) + f\left(\frac{1}{x}\right) = x^2 + 1$, then $\int f(x) dx$ is: (Here C is an arbitrary constant)

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

2. $\frac{2}{3}x^3 - \frac{1}{x} + x + C$

3. $\frac{x^3}{3} + x + C$

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

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 226895685162

Option 1 ID : 2268952656378

Option 2 ID : 2268952656379

Option 3 ID : 2268952656380

Option 4 ID : 2268952656381

Status : Not Answered

Chosen Option : --

Q.37

If $A = \begin{bmatrix} 3 & 1 \\ -1 & 2 \end{bmatrix}$ and $I = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$, then the value of $A^2 - 5A + 6I$ is

1. $\begin{bmatrix} -1 & 0 \\ 0 & -1 \end{bmatrix}$

2. $\begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$

3. $\begin{bmatrix} 1 & 1 \\ 1 & 1 \end{bmatrix}$

4. $\begin{bmatrix} 0 & -1 \\ -1 & 0 \end{bmatrix}$

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 226895685150

Option 1 ID : 2268952656330

Option 2 ID : 2268952656331

Option 3 ID : 2268952656332

Option 4 ID : 2268952656333

Status : Not Answered

Chosen Option : --



shiksha

Q.38

Match **List-I** with **List-II**

List-I	List-II
Differential Equation	Integrating Factor
(A) $y dx + (x - y^3) dy = 0$	(I) e^{-x}
(B) $x \frac{dy}{dx} + y = x^2$	(II) $\frac{1}{x}$
(C) $\frac{dy}{dx} - y = e^x$	(III) y
(D) $x dy - y dx = x^3 dx$	(IV) x

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

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

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 226895685168

Option 1 ID : 2268952656402

Option 2 ID : 2268952656403

Option 3 ID : 2268952656404

Option 4 ID : 2268952656405

Status : Not Answered

Chosen Option : --

Q.39

Match **List-I** with **List-II**

List-I	List-II
Mathematical Statement	Value
(A) $\hat{i} \cdot (\hat{j} \times \hat{k})$	(I) $-\hat{k}$
(B) $\hat{j} \cdot (\hat{i} \times \hat{k})$	(II) 1
(C) $\hat{i} \times (\hat{j} \times \hat{k})$	(III) -1
(D) $\hat{j} \times \hat{i}$	(IV) $\vec{0}$

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

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

Options 1. 1

2. 2

3. 3

4. 4



shiksha

Question Type : MCQ

Question ID : 226895685170

Option 1 ID : 2268952656410

Option 2 ID : 2268952656411

Option 3 ID : 2268952656412

Option 4 ID : 2268952656413

Status : Not Answered

Chosen Option : --

Q.40

If $A = \begin{bmatrix} 2 & -1 & -2 \\ 0 & 2 & -1 \\ 3 & -5 & 0 \end{bmatrix}$, then the value of $\det(\text{adj}(2A))$ is:

1. 100
2. 320
3. 400
4. 1600

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 226895685155

Option 1 ID : 2268952656350

Option 2 ID : 2268952656351

Option 3 ID : 2268952656352

Option 4 ID : 2268952656353

Status : Not Answered

Chosen Option : --

Q.41

In a linear programming problem, the constraints on decision variables x and y are $y - 2x \leq 0, y \geq 0, 0 \leq x \leq 5$. The feasible region of the above problem:

1. is bounded in the first quadrant
2. is unbounded in the first quadrant
3. is unbounded in first and second quadrants
4. does not exist

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 226895685176

Option 1 ID : 2268952656434

Option 2 ID : 2268952656435

Option 3 ID : 2268952656436

Option 4 ID : 2268952656437

Status : Not Answered

Chosen Option : --

Q.42

If $\vec{a} = 3\hat{i} - 6\hat{j} + \hat{k}$ and $\vec{b} = 2\hat{i} - 4\hat{j} + \lambda\hat{k}$ are such that $\vec{a} \parallel \vec{b}$, then $3\lambda + 2 =$

1. 0
2. 2
3. 4
4. 6

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 226895685171

Option 1 ID : 2268952656414

Option 2 ID : 2268952656415

Option 3 ID : 2268952656416

Option 4 ID : 2268952656417

Status : Not Answered

Chosen Option : --

Q.43

The corner points of the bounded feasible region determined by the system of linear inequalities are (0, 0), (2, 4), (0, 5) and (4, 0). If the maximum value of $Z = ax + by$, where $a, b > 0$ occurs at both (2, 4) and (4, 0), then

1. $3a = b$
2. $a = b$
3. $a = 2b$
4. $2a = b$

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 226895685177

Option 1 ID : 2268952656438

Option 2 ID : 2268952656439

Option 3 ID : 2268952656440

Option 4 ID : 2268952656441

Status : Not Answered

Chosen Option : --

Q.44

If $|\vec{a}| = 1, |\vec{b}| = 2, |2\vec{a} + \vec{b}| = 2\sqrt{3}$ then $|\vec{a} - \vec{b}|$ is:

1. $\sqrt{3}$
2. $\sqrt{5}$
3. $\frac{2}{\sqrt{3}}$
4. $\frac{2}{\sqrt{5}}$

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 226895685172

Option 1 ID : 2268952656418

Option 2 ID : 2268952656419

Option 3 ID : 2268952656420

Option 4 ID : 2268952656421

Status : Not Answered

Chosen Option : --

Q.45

The value of k for which the function $f(x) = \begin{cases} \frac{1 - \cos 8x}{16x^2}, & \text{if } x \neq 0 \\ k, & \text{if } x = 0 \end{cases}$ is continuous at $x = 0$ is:

1. 0
2. 2
3. -2
4. 1

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 226895685158

Option 1 ID : 2268952656362

Option 2 ID : 2268952656363

Option 3 ID : 2268952656364

Option 4 ID : 2268952656365

Status : Not Answered

Chosen Option : --

Q.46

The function $f(x) = \sin 3x$, $x \in \left[0, \frac{\pi}{2}\right]$

(A) is increasing on $\left[0, \frac{\pi}{6}\right]$

(B) is decreasing on $\left[\frac{\pi}{6}, \frac{\pi}{2}\right]$

(C) is increasing on $\left[0, \frac{\pi}{2}\right]$

(D) is decreasing on $\left[0, \frac{\pi}{2}\right]$

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

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

Options 1. 1

2. 2

3. 3

4. 4



shiksha

Question Type : MCQ

Question ID : 226895685159

Option 1 ID : 2268952656366

Option 2 ID : 2268952656367

Option 3 ID : 2268952656368

Option 4 ID : 2268952656369

Status : Not Answered

Chosen Option : --

Q.47

Match **List-I** with **List-II**

List-I	List-II
(A) $\int_{-a}^a f(x) dx = 0$	(I) 0
(B) $\int_0^{2a} f(x) dx = 2 \int_0^a f(x) dx$	(II) 1
(C) $\int_{-\pi}^{\pi} \cos x dx$	(III) f is an odd function
(D) $\int_{-1}^1 x^{101} dx + 1$	(IV) $f(2a - x) = f(x)$

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

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

Options 1. 1

2. 2

3. 3

4. 4

Question Type : **MCQ**Question ID : **226895685163**Option 1 ID : **2268952656382**Option 2 ID : **2268952656383**Option 3 ID : **2268952656384**Option 4 ID : **2268952656385**Status : **Not Answered**

Chosen Option : --

Q.48

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

1. $\frac{15}{4}$ sq. units
2. $\frac{17}{4}$ sq. units
3. $\frac{19}{4}$ sq. units
4. $\frac{21}{4}$ sq. units

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 226895685165

Option 1 ID : 2268952656390

Option 2 ID : 2268952656391

Option 3 ID : 2268952656392

Option 4 ID : 2268952656393

Status : Not Answered

Chosen Option : --

Q.49

If $y^{1/m} + y^{-1/m} = 2x$, then the value of $(x^2 - 1) \frac{d^2y}{dx^2} + x \frac{dy}{dx}$ is:

1. 0
2. my
3. m^2y
4. m^2

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 226895685156

Option 1 ID : 2268952656354

Option 2 ID : 2268952656355

Option 3 ID : 2268952656356

Option 4 ID : 2268952656357

Status : Not Answered

Chosen Option : --

Q.50

If $x = e^{\cos 2t}$, $y = e^{\sin 2t}$, then $\frac{dy}{dx}$ equals to

1. $\frac{y \log_e x}{x \log_e y}$
2. $\frac{x \log_e x}{y \log_e y}$
3. $-\frac{y \log_e x}{x \log_e y}$
4. $\frac{-x \log_e x}{y \log_e y}$

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 226895685157

Option 1 ID : 2268952656358

Option 2 ID : 2268952656359

Option 3 ID : 2268952656360

Option 4 ID : 2268952656361

Status : Not Answered

Chosen Option : --

Section : Mathematics Section B2 Applied

Q.51

If the corner points of the bounded feasible region for a Linear Programming Problem (LPP) are A(0,2), B(3, 0), C(2, 3) and D(3, 1), then the maximum value of the objective function $Z = 4x + 2y$ occurs at

1. (0, 2) only
2. the mid-point of the line segment joining the points (2, 3) and (3, 1) only
3. (2, 3) and (3, 1) only
4. every point on the line segment joining the points (2, 3) and (3, 1)

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 226895685216

Option 1 ID : 2268952656594

Option 2 ID : 2268952656595

Option 3 ID : 2268952656596

Option 4 ID : 2268952656597

Status : Not Answered

Chosen Option : --

Q.52

The standard deviation of the number of tails in three tosses of a coin is:

1. $\frac{3}{4}$

2. $\frac{3}{2}$

3. $\frac{3}{\sqrt{2}}$

4. $\frac{\sqrt{3}}{2}$

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 226895685199

Option 1 ID : 2268952656526

Option 2 ID : 2268952656527

Option 3 ID : 2268952656528

Option 4 ID : 2268952656529

Status : Not Answered

Chosen Option : --

Q.53

The value of a depreciable asset at the end of its useful life is called ____.

1. Nominal Value

2. Book value

3. Marginal value

4. Scrap value

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 226895685212

Option 1 ID : 2268952656578

Option 2 ID : 2268952656579

Option 3 ID : 2268952656580

Option 4 ID : 2268952656581

Status : Not Answered

Chosen Option : --

Q.54

Three bad eggs are mixed with 7 good ones. If two eggs are drawn one by one without replacement, then the probability distribution of the number (X) of bad eggs drawn is:

1.

X	0	1	2
P(X)	1/4	1/2	1/4

2.

X	0	1	2
P(X)	15/61	20/61	26/61

3.

X	0	1	2
P(X)	7/15	7/15	1/15

4.

X	0	1	2
P(X)	1/8	1/4	5/8

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 226895685198

Option 1 ID : 2268952656522

Option 2 ID : 2268952656523

Option 3 ID : 2268952656524

Option 4 ID : 2268952656525

Status : Not Answered

Chosen Option : --

Q.55

Which of the following statements are correct?

(A) If A is a square matrix, then $|A^2| = |A|^2$.

(B) If A and B are square matrices of the same order, then $\det(AB) = \det(A) + \det(B)$.

(C) If A is a square matrix of order 3 and $|A|=2$, then the value of $|-3A|$ is 54.

(D) If the matrix $\begin{bmatrix} 5-x & x-1 \\ 3 & 5 \end{bmatrix}$ is singular, then the value of x is 7/2.

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

1. (A), (B) and (D) only

2. (A), (B) and (C) only

3. (A) and (D) only

4. (B), (C) and (D) only

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 226895685188

Option 1 ID : 2268952656482

Option 2 ID : 2268952656483

Option 3 ID : 2268952656484

Option 4 ID : 2268952656485

Status : Answered

Chosen Option : 4

Q.56

An automobile dealer wishes to buy four luxury cars of different brands given in the table below with some down payment and balance in equal monthly installments (EMI) for 10 years. The bank charges 9% interest per annum compounded monthly.

$$\left(\text{Given } \frac{0.0075 \times (1.0075)^{120}}{(1.0075)^{120} - 1} = 0.01266 \right)$$

Luxury Car	Price of the Car (in Rs.)	Down payment (in Rs.)
P	25,00,000	5,00,000
Q	35,00,000	12,00,000
R	45,00,000	15,00,000
S	42,00,000	15,00,000

Match List-I with List-II

List-I	List-II
Luxury Car	EMI (in Rs.)
(A) P	(I) 34,182
(B) Q	(II) 37,980
(C) R	(III) 29,118
(D) S	(IV) 25,320

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

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

Options 1. 1

2. 2

3. 3

4. 4

Question Type : **MCQ**

Question ID : **226895685211**

Option 1 ID : **2268952656574**

Option 2 ID : **2268952656575**

Option 3 ID : **2268952656576**

Option 4 ID : **2268952656577**

Status : **Answered**

Chosen Option : **1**

Q.57

If X is a normal variate with mean 16 and standard deviation 4, then the value of standard normal variate Z corresponding to X = 17 is:

- 1.25
- 1.25
- 0.25
- 0.25

Options 1. 1

2. 2

3. 3

4. 4

Question Type : **MCQ**

Question ID : **226895685201**

Option 1 ID : **2268952656534**

Option 2 ID : **2268952656535**

Option 3 ID : **2268952656536**

Option 4 ID : **2268952656537**

Status : **Answered**

Chosen Option : **4**

Q.58

If a revenue function is given by $R(x) = 2027x - 1013x^2 - 675x^3$, then the marginal revenue function (MR) is:

1. $MR = 2027 - 1013x - 675x^2$
2. $MR = 2026 - 4050x$
3. $MR = 2027 - 2026x - 2025x^2$
4. $MR = 1013x - 2025x^2$

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 226895685194

Option 1 ID : 2268952656506

Option 2 ID : 2268952656507

Option 3 ID : 2268952656508

Option 4 ID : 2268952656509

Status : Answered

Chosen Option : 4

Q.59

A furniture trader deals in only two items— chairs and tables. He has Rs. 50,000 to invest and a space to store atmost 35 items. A chair costs him Rs. 1000 and a table costs him Rs 2000. The trader earns a profit of Rs. 150 and Rs. 250 on a chair and a table, respectively. Choose the correct option among following that describes the given linear programming problem (LPP) to maximize the profit (where x and y are the number of chairs and tables that trader buys and sells)?

1. Maximize $Z = 150x + 250y$,
Subjected to constants,
 $x + y \leq 35, x + 2y \geq 50, x \geq 0, y \geq 0$
2. Maximize $Z = 150x + 250y$,
Subjected to constants,
 $x + y \leq 35, x + 2y \leq 50, x \geq 0, y \geq 0$
3. Maximize $Z = 150x + 250y$,
Subjected to constants,
 $x + y \geq 35, 2x + y \leq 50, x \geq 0, y \geq 0$
4. Maximize $Z = 150x + 250y$,
Subjected to constants,
 $x + y \geq 35, 2x + y \geq 50, x \geq 0, y \geq 0$

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 226895685215

Option 1 ID : 2268952656590

Option 2 ID : 2268952656591

Option 3 ID : 2268952656592

Option 4 ID : 2268952656593

Status : Answered

Chosen Option : 1

Q.60

The area of the region bounded by the curves $y = x^2 + 2$ and x -axis, between $x = 0$ and $x = 3$ in the first quadrant is:

1. $\frac{16}{3}$ sq.units
2. 15 sq.units
3. $\frac{21}{2}$ sq.units
4. 12 sq.units

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 226895685205

Option 1 ID : 2268952656550

Option 2 ID : 2268952656551

Option 3 ID : 2268952656552

Option 4 ID : 2268952656553

Status : Answered

Chosen Option : 3

Q.61

Which of the following are types of "statistical inferences"?

- (A) Point estimation
- (B) Interval estimation
- (C) Marginal estimation
- (D) Hypothesis testing

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

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

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 226895685206

Option 1 ID : 2268952656554

Option 2 ID : 2268952656555

Option 3 ID : 2268952656556

Option 4 ID : 2268952656557

Status : Answered

Chosen Option : 4

Q.62

Pipe A can fill the tank 3 times faster than pipe B. If both pipes A and B running together can fill the tank in 15 minutes, then the time taken by B alone to fill the tank is:

1. 42 minutes
2. 72 minutes
3. 60 minutes
4. 48 minutes

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**Question ID : **226895685185**Option 1 ID : **2268952656470**Option 2 ID : **2268952656471**Option 3 ID : **2268952656472**Option 4 ID : **2268952656473**Status : **Answered**Chosen Option : **2****Q.63**

For the given five values, 15, 24, 18, 33, 42, the three-year moving averages are

1. 19, 22, 23
2. 19, 25, 31
3. 19, 30, 31
4. 19, 25, 33

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**Question ID : **226895685203**Option 1 ID : **2268952656542**Option 2 ID : **2268952656543**Option 3 ID : **2268952656544**Option 4 ID : **2268952656545**Status : **Answered**Chosen Option : **1**

Q.64

A steamer can row at the speed of 16km/hr in still water. If the river is flowing at 8 km/hr and it takes 12 hours for a round trip, then the distance between the two places is:

1. 48 km
2. 72 km
3. 96 km
4. 54 km

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**Question ID : **226895685184**Option 1 ID : **2268952656466**Option 2 ID : **2268952656467**Option 3 ID : **2268952656468**Option 4 ID : **2268952656469**Status : **Answered**Chosen Option : **4****Q.65**

If the matrix $M = \begin{bmatrix} 0 & -1 & 3\alpha \\ 1 & \beta & -5 \\ -6 & 5 & 0 \end{bmatrix}$ is skew- symmetric, then

1. $\alpha = 2, \beta = 1$
2. $\alpha = 2, \beta = -1$
3. $\alpha = 2, \beta = 0$
4. $\alpha = 1, \beta = 0$

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**Question ID : **226895685191**Option 1 ID : **2268952656494**Option 2 ID : **2268952656495**Option 3 ID : **2268952656496**Option 4 ID : **2268952656497**Status : **Answered**Chosen Option : **1**

Q.66

If the slope of the tangent to the curve $y = y(x)$ at any point (x, y) is $\frac{2x}{y^2}$ and the curve passes through the point $(\frac{1}{\sqrt{3}}, 1)$, then equation of curve is

1. $y^2 = 3x^3$
2. $y^3 = 3x^2$
3. $y^4 = 3x^2$
4. $y = 3x^2$

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**Question ID : **226895685197**Option 1 ID : **2268952656518**Option 2 ID : **2268952656519**Option 3 ID : **2268952656520**Option 4 ID : **2268952656521**Status : **Answered**Chosen Option : **4****Q.67**

Mr. Mittal invested Rs. 20,000 in a mutual fund in the year 2019. The value of the mutual fund increased to Rs. 32,000 in the year 2024. The compound annual growth rate of his investment is:

[Given $(1.6)^{1/5} = 1.098$]

1. 8.5%
2. 10%
3. 9.8%
4. 9.1%

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**Question ID : **226895685213**Option 1 ID : **2268952656582**Option 2 ID : **2268952656583**Option 3 ID : **2268952656584**Option 4 ID : **2268952656585**Status : **Answered**Chosen Option : **4**

Q.68

If A is a non-singular matrix of order 3 such that $|adj(A)| = 121$, then $|AA^T|$ is equal to:

1. 121
2. 21
3. 63
4. 11

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 226895685189

Option 1 ID : 2268952656486

Option 2 ID : 2268952656487

Option 3 ID : 2268952656488

Option 4 ID : 2268952656489

Status : Answered

Chosen Option : 2

Q.69

If $y = \sqrt{x + \sqrt{x + \sqrt{x + \dots}}}$, then

1. $(2y + 1) \frac{dy}{dx} + 3\sqrt{x} = 0$

2. $3 \frac{dy}{dx} + 3y^2 = 0$

3. $3x \frac{dy}{dx} + (2y + 1) = 0$

4. $(2y - 1) \frac{dy}{dx} - 1 = 0$

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 226895685193

Option 1 ID : 2268952656502

Option 2 ID : 2268952656503

Option 3 ID : 2268952656504

Option 4 ID : 2268952656505

Status : Answered

Chosen Option : 3

Q.70

If the system of equations $2x + 3y = 10$, $x + ky = 4$ has a unique solution, then

1. $k = 3/2$
2. $k \neq 3/2$
3. $k \neq 0$
4. $k \neq 1/2$

Options

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

Question Type : **MCQ**Question ID : **226895685190**Option 1 ID : **2268952656490**Option 2 ID : **2268952656491**Option 3 ID : **2268952656492**Option 4 ID : **2268952656493**Status : **Answered**Chosen Option : **4****Q.71**

The following data shows the percentage of urban Indian households who have a high speed 5G internet connection:

Year (x)	2020	2021	2022	2023	2024
Urban house hold (y)	9%	18%	21%	29%	38%

If a straight line trend by the method of least square for the above data is $y = 23 + 6.9(x - 2022)$, then the forecast for the year 2025 is;

1. 54.6%
2. 43.7%
3. 47.6%
4. 34.8%

Options

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

Question Type : **MCQ**Question ID : **226895685204**Option 1 ID : **2268952656546**Option 2 ID : **2268952656547**Option 3 ID : **2268952656548**Option 4 ID : **2268952656549**Status : **Answered**Chosen Option : **4**

Q.72

For the function $f(x) = x^{1/x}, x > 0$, which of the following are correct?

- (A) $x = 0$ is the only point where extremum may occur.
- (B) The given function is maximum at $x = e$.
- (C) The function has no extreme value for $x > 0$.
- (D) The maximum value of the function $f(x)$ is $e^{1/e}$.

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

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

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 226895685195

Option 1 ID : 2268952656510

Option 2 ID : 2268952656511

Option 3 ID : 2268952656512

Option 4 ID : 2268952656513

Status : Answered

Chosen Option : 4

Q.73

Which of the following are examples of irregular trends in a time series?

- (A) Decrease in production due to a sudden strike.
- (B) The rise in prices before festivals
- (C) Unusual rise in income of the printing press due to the announcement of an election.
- (D) Fall in crop yield due to floods.

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

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

Options 1. 1

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

Question Type : MCQ

Question ID : 226895685202

Option 1 ID : 2268952656538

Option 2 ID : 2268952656539

Option 3 ID : 2268952656540

Option 4 ID : 2268952656541

Status : Answered

Chosen Option : 4

Q.74

In what ratio a grocery shopkeeper mix two varieties of pulses worth Rs. 85 per kg and Rs. 100 per kg respectively, so as to get a mixture worth Rs. 92 per kg?

- 1. 8:7
- 2. 5:6
- 3. 3:7
- 4. 11:10

Options 1. 1

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

Question Type : MCQ

Question ID : 226895685183

Option 1 ID : 2268952656462

Option 2 ID : 2268952656463

Option 3 ID : 2268952656464

Option 4 ID : 2268952656465

Status : Answered

Chosen Option : 2

Q.75

Match **List-I** with **List-II**

List-I	List-II
(Inequality)	(Solution Set)
(A) $2x - 3 < x + 2 \leq 3x + 5, \quad x \in \mathbb{R}$	(I) $x \in (-1, \infty)$
(B) $ 2x + 3 < 7, \quad x \in \mathbb{R}$	(II) $x \in (-\infty, 120]$
(C) $\frac{1}{2}\left(\frac{3}{5}x + 4\right) \geq \frac{1}{3}(x - 6), \quad x \in \mathbb{R}$	(III) $x \in (-5, 2)$
(D) $\frac{ x + 1 }{x + 1} > 0, \quad x \in \mathbb{R} - \{1\}$	(IV) $x \in \left[-\frac{3}{2}, 5\right)$

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

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

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 226895685187

Option 1 ID : 2268952656478

Option 2 ID : 2268952656479

Option 3 ID : 2268952656480

Option 4 ID : 2268952656481

Status : Answered

Chosen Option : 4

Q.76

If 95% confidence interval for the population mean was reported to be 140 to 150 and $\sigma = 25$, then size of the sample used in this study is:

[Given: $Z_{0.025} = 1.96$]

1. 120

2. 81

3. 96

4. 112

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 226895685207

Option 1 ID : 2268952656558

Option 2 ID : 2268952656559

Option 3 ID : 2268952656560

Option 4 ID : 2268952656561

Status : Answered

Chosen Option : 3



Q.77

The unit digit of 12^{12} is:

- 1. 4
- 2. 2
- 3. 0
- 4. 6

Options 1. 1

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

Question Type : MCQ

Question ID : 226895685182

Option 1 ID : 2268952656458

Option 2 ID : 2268952656459

Option 3 ID : 2268952656460

Option 4 ID : 2268952656461

Status : Answered

Chosen Option : 2

Q.78

Consider the following hypothesis test:

$$H_0: \mu = 18$$

$$H_1: \mu \neq 18$$

If a sample of 48 provided a sample mean $\bar{x} = 17$ and a sample standard deviation $s = 4.5$, then the value of the t-test statistic is:

- 1. 2.14
- 2. -1.54
- 3. 0.84
- 4. 1.988

Options 1. 1

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

Question Type : MCQ

Question ID : 226895685208

Option 1 ID : 2268952656562

Option 2 ID : 2268952656563

Option 3 ID : 2268952656564

Option 4 ID : 2268952656565

Status : Answered

Chosen Option : 4

Q.79

The value of the definite integral $I = \int_0^2 x\sqrt{2-x} \, dx$ is:

1. $\frac{16}{15\sqrt{2}}$

2. $\frac{16\sqrt{3}}{15}$

3. $\frac{16\sqrt{2}}{15}$

4. $\frac{5\sqrt{2}}{7}$

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 226895685196

Option 1 ID : 2268952656514

Option 2 ID : 2268952656515

Option 3 ID : 2268952656516

Option 4 ID : 2268952656517

Status : Answered

Chosen Option : 4

Q.80

A person has taken a loan of Rs. 40,000 for 3 months from a lender who has deducted Rs.2,000 as interest at the time of lending. Then the effective rate of interest charged per annum by lender is (given $(1.0526)^4 = 1.2275$):

1. 10.50%

2. 21%

3. 22.75%

4. 16.75%

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 226895685214

Option 1 ID : 2268952656586

Option 2 ID : 2268952656587

Option 3 ID : 2268952656588

Option 4 ID : 2268952656589

Status : Answered

Chosen Option : 2

Q.81

Which of the following is NOT correct about "Sinking Fund"?

1. It is set up for particular upcoming expense.
2. A fixed amount at regular intervals is deposited in it.
3. It can be used only for the purpose it was created.
4. It is a long-term fund which can be closed at any time.

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 226895685209

Option 1 ID : 2268952656566

Option 2 ID : 2268952656567

Option 3 ID : 2268952656568

Option 4 ID : 2268952656569

Status : Answered

Chosen Option : 4

Q.82

In a 700 m race, the ratio of speeds of two participants A and B is 5:6. If A has a start of 150 m, then the distance by which A wins the race is:

1. 80 m
2. 40 m
3. 75 m
4. 100 m

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 226895685186

Option 1 ID : 2268952656474

Option 2 ID : 2268952656475

Option 3 ID : 2268952656476

Option 4 ID : 2268952656477

Status : Answered

Chosen Option : 1

Q.83

Let $A = \begin{bmatrix} 0 & 2\alpha + 1 \\ 1 & \beta \end{bmatrix}$ and $B = [b_{ij}]$ be a skew symmetric matrix of order 2 such that $b_{12} = 1$. If $AB = I_2$, where I_2 is identity matrix of order 2, then

1. $\alpha + \beta = 1$
2. $\beta - \alpha = 1$
3. $\alpha + \beta = -2$
4. $\alpha\beta = 1$

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**Question ID : **226895685192**Option 1 ID : **2268952656498**Option 2 ID : **2268952656499**Option 3 ID : **2268952656500**Option 4 ID : **2268952656501**Status : **Answered**Chosen Option : **4****Q.84**

What sum of money is needed to invest now, so as to get Rs. 5000 at the beginning of every month forever, if the money is worth 6 % per annum compounded monthly?

1. Rs. 10,05,000
2. Rs. 15,00,000
3. Rs. 10,50,000
4. Rs. 12,50,000

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**Question ID : **226895685210**Option 1 ID : **2268952656570**Option 2 ID : **2268952656571**Option 3 ID : **2268952656572**Option 4 ID : **2268952656573**Status : **Answered**Chosen Option : **4**

Q.85

In 5 trials of binomial distribution, the probability of 3 successes is 4 times the probability of 2 successes. The probability of success in each trial is:

1. $\frac{1}{5}$
2. $\frac{4}{5}$
3. $\frac{3}{4}$
4. $\frac{2}{3}$

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**Question ID : **226895685200**Option 1 ID : **2268952656530**Option 2 ID : **2268952656531**Option 3 ID : **2268952656532**Option 4 ID : **2268952656533**Status : **Answered**Chosen Option : **2**