Andhra Pradesh State Council of Higher Education

Notations :

1.Options shown in green color and with ✔ icon are correct.

2.Options shown in red color and with ✖ icon are incorrect.

Question Paper Name :	Mathematical Sciences 11th June 2025 Shift 1
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Mathematical Sciences

Group Number :	1
Group Id :	83214762
Group Maximum Duration :	0
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Show Attended Group? :	No
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Mathematical Sciences

Section Id :	83214762
Section Number :	1
Section type :	Online

Mandatory or Optional : Mandatory
Number of Questions : 100
Number of Questions to be attempted : 100
Section Marks : 100
Maximum Instruction Time : 0
Sub-Section Number : 1
Sub-Section Id : 83214762
Question Shuffling Allowed : Yes

Question Number : 1 Question Id : 8321476101 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Let $(C,+,\cdot)$ and $(R,+,\cdot)$ be respectively the field of complex numbers and the field of real numbers. Then $dim_R C =$

$(C,+,\cdot)$ మరియు $(R,+,\cdot)$ లు వరసగా సంకీర్ణసంఖ్యా క్షేత్రము మరియు వాస్తవ సంఖ్యా క్షేత్రములను సూచిస్తే $dim_R C =$

Options :

1. ✖ ∞

2. ✖ 1

3. ✔ 2

4. ✖ 4

Question Number : 2 Question Id : 8321476102 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Let $M_2(C) = \left\{\begin{pmatrix} a & b \\ c & d \end{pmatrix} / a,b,c,d \in C\right\}$, where C is the set of complex numbers. Then the dimension of the vector space $M_2(C)$ over the field of real numbers $(R,+,\cdot)$ is

సంకీర్ణసంఖ్యా సమితి C కి $M_2(C) = \left\{\begin{pmatrix} a & b \\ c & d \end{pmatrix} / a,b,c,d \in C\right\}$ గా తీసుకుంటే వాస్తవ సంఖ్యా క్షేత్రము $(R,+,\cdot)$ పై $M_2(C)$ యొక్క పరిమాణము

Options :

1. ✔ 8

2. ✖ 4

3. ✖ 2

4. ✖ ∞

Question Number : 3 Question Id : 8321476103 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following sets is not a basis of R^2 over the field $(R,+,\cdot)$ of real numbers?

క్రింది సమితులలో ఏది వాస్తవ సంఖ్యా క్షేత్రము $(R,+,\cdot)$ పై R^2 కి ఆధారము కాదు?

Options :

1. ✖ $\{(1,0),(0,-1)\}$

2. ✖ $\{(1,1),(-1,1)\}$

3. ✖ $\{(-2,1),(1,0)\}$

4. ✔ $\{(1,-1),(-2,2)\}$

Question Number : 4 Question Id : 8321476104 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The dimension of the subspace $W = \left\{ \begin{pmatrix} x & -x \\ y & z \end{pmatrix} / x, y, z \in R \right\}$ of the vector space $M_2(R)$ of 2×2 matrices over the field $(R, +, \cdot)$ of real numbers is

వాస్తవ సంఖ్యా క్షేత్రము $(R, +, \cdot)$ పై 2×2 మాత్రికల సదిశాంతరాళము $M_2(R)$ కు ఉపాంతరాళము $W = \left\{ \begin{pmatrix} x & -x \\ y & z \end{pmatrix} / x, y, z \in R \right\}$ యొక్క పరిమాణము

Options :

1. ✖ 1

2. ✖ 2

3. ✔ 3

4. ✖ 4

Question Number : 5 Question Id : 8321476105 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

For the subspaces $W_1 = \left\{ \begin{pmatrix} x & y \\ z & 0 \end{pmatrix} / x, y, z \in R \right\}$ and $W_2 = \left\{ \begin{pmatrix} x & 0 \\ 0 & z \end{pmatrix} / x, z \in R \right\}$ of the vector space $M_2(R)$ of 2×2 matrices are over the field $(R, +, \cdot)$ of real numbers, the $dim_R(W_1 \cap W_2) =$

వాస్తవ సంఖ్యా క్షేత్రము $(R, +, \cdot)$ పై 2×2 మాత్రికల సదిశాంతరాళము $M_2(R)$ యొక్క ఉపాంతరాళాలు

$W_1 = \left\{ \begin{pmatrix} x & y \\ z & 0 \end{pmatrix} / x, y, z \in R \right\}$ మరియు

$W_2 = \left\{ \begin{pmatrix} x & 0 \\ 0 & z \end{pmatrix} / x, z \in R \right\}$ లకు $dim_R(W_1 \cap W_2) =$

Options :

1. ✔ 1

2. ✖ 2

3. ✖ 3

4. ✖ 4

Question Number : 6 Question Id : 8321476106 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $T: R^2 \rightarrow R^2$ is a linear transformation defined by $T(1,0) = (2,3)$ and $T(0,1) = (-1,1)$, then for $(a,b) \in R^2, T(a,b) =$

సదిశాంతరాళ సమరూపత $T: R\text{^}2 \rightarrow R\text{^}2$ ను $T(1,0) = (2,3)$ మరియు $T(0,1) = (-1,1)$ గా నిర్వచిస్తే,

$(a,b) \in R^2$ కు $T(a,b) =$

Options :

1. ✖ $(2a + 3b, 0)$

2. ✔ $(2a - b, 3a + b)$

3. ✖ $(2a + b, 3a - b)$

4. ✖ $(3a, -2b)$

Question Number : 7 Question Id : 8321476107 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $T: R^3 \to R^3$ is a linear transformation defined by $T(x_1, x_2, x_3) = (x_1 - x_2, x_2 - x_3, x_3 - x_2)$ and if $(a, b, c) \in Ker\,T$, then

సదిశాంతరాళ సమరూపత $T: R^3 \to R^3$ ను $T(x_1, x_2, x_3) = (x_1 - x_2, x_2 - x_3, x_3 - x_2)$ గా నిర్వచిస్తే,

$(a, b, c) \in Ker\,T$ అయితే

Options :

1. ✖ $a = b + c$

2. ✖ $2a = b + c$

3. ✖ $a + b + c = 0$

4. ✔ $a = b = c$

Question Number : 8 Question Id : 8321476108 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The Eigen values of the matrix $\begin{pmatrix} 2 & 2 \\ 3 & 1 \end{pmatrix}$ are

మాత్రిక $\begin{pmatrix} 2 & 2 \\ 3 & 1 \end{pmatrix}$ యొక్క లాక్షణిక విలువలు

Options :

1. ✖ $1, 4$

2. ✔ $-1, 4$

3. ✖ $-1, -4$

4. ✖ $1, -4$

Question Number : 9 Question Id : 8321476109 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The characteristic equation of the matrix $\begin{pmatrix} 1 & 1 & -1 \\ 0 & 1 & 0 \\ 1 & 0 & 1 \end{pmatrix}$ is

మాత్రిక $\begin{pmatrix} 1 & 1 & -1 \\ 0 & 1 & 0 \\ 1 & 0 & 1 \end{pmatrix}$ యొక్క లాక్షణిక సమీకరణము

Options :

1. ✔ $\lambda^3 - 3\lambda^2 + 4\lambda - 2 = 0$

2. ✖ $\lambda^3 + 3\lambda^2 + 4\lambda + 2 = 0$

3. ✖ $\lambda^3 - 3\lambda^2 - 4\lambda - 2 = 0$

4. ✖ $\lambda^3 + 3\lambda^2 + 4\lambda - 2 = 0$

Question Number : 10 Question Id : 8321476110 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The Eigen values of the matrix $\begin{pmatrix} \cos\theta & \sin\theta \\ -\sin\theta & \cos\theta \end{pmatrix}$ are

మాత్రిక $\begin{pmatrix} \cos\theta & \sin\theta \\ -\sin\theta & \cos\theta \end{pmatrix}$ యొక్క లాక్షణిక విలువలు

Options :

1. ✖ $\cos\theta, \sin\theta$

2. ✖ $\cos\theta, -\sin\theta$

3. ✔

$e^{i\theta}, e^{-i\theta}$

4. ✖ $1, -1$

Question Number : 11 Question Id : 8321476111 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

If $A = \begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}$, then

మాత్రిక $A = \begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}$ అయిన

Options :

1. ✖ $A^2 - 3A - 2I = 0$

2. ✔ $A^2 - 5A - 2I = 0$

3. ✖ $A^2 - 3A - 4I = 0$

4. ✖ $A^2 - 5A - 4I = 0$

Question Number : 12 Question Id : 8321476112 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

If $A = \begin{pmatrix} 1 & 3 \\ 1 & 2 \end{pmatrix}$, then $A^{-1} =$

మాత్రిక $A = \begin{pmatrix} 1 & 3 \\ 1 & 2 \end{pmatrix}$ అయిన $A^{-1} =$

Options :

1. ✖ $A^{-1} = A + 3I$

2. ✖ $A^{-1} = A + 2I$

3. ✖ $A^{-1} = A - 2I$

4. ✔ $A^{-1} = A - 3I$

Question Number : 13 Question Id : 8321476113 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If the linear transformation $T: R^4 \to R^4$ is defined by $T(a,b,c,d) = (2a,0,0,c+d)$, then the rank $\rho(T)$ and nullity $\nu(T)$ of T respectively are

సదిశాంతరాళ సమరూపత $T: R^4 \to R^4$ ను $T(a,b,c,d) = (2a,0,0,c+d)$ గా నిర్వచిస్తే T యొక్క కోటి (ర్యాంకు) $\rho(T)$ మరియు శూన్యతలు $\nu(T)$ వరసగా

Options :

1. ✖ $\rho(T) = 2; \nu(T) = 2$

2. ✖ $\rho(T) = 1; \nu(T) = 3$

3. ✔ $\rho(T) = 3; \nu(T) = 1$

4. ✖ $\rho(T) = 4; \nu(T) = 0$

Question Number : 14 Question Id : 8321476114 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In the inner product space R^3 with respect to the standard inner product, the unit vector orthogonal to $(2,2,-1)$ is
ప్రామాణిక అంతర లబ్ధము R^3 లో సదిశ $(2,2,-1)$ కు లంబముగా ఉండే యూనిట్ సదిశ

Options :

1. ✔ $\left(\frac{1}{3}, \frac{-2}{3}, \frac{-2}{3}\right)$

2. ✖ $\left(\frac{1}{3}, \frac{2}{3}, \frac{-2}{3}\right)$

3. ✖ $\left(\frac{2}{3}, \frac{2}{3}, \frac{-1}{3}\right)$

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

Question Number : 15 Question Id : 8321476115 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

In the inner product space R^3 with respect to the standard inner product, the angle between the vectors $u = (4,1,8)$, $v = (1,0,-3)$ is
ప్రామాణిక అంతర లబ్ధము R^3 లో సదిశలు $u = (4,1,8)$, $v = (1,0,-3)$ ల మధ్య కోణము

Options :

1. ✖ $\cos^{-1}\left(\frac{2}{9}\sqrt{10}\right)$

2. ✔ $\cos^{-1}\left(-\frac{2}{9}\sqrt{10}\right)$

3. ✖

$\sin^{-1}\left(-\frac{2}{9}\sqrt{10}\right)$

4. ✖ $\sin^{-1}\left(\frac{2}{9}\sqrt{10}\right)$

Question Number : 16 Question Id : 8321476116 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $S = \{\alpha_1, \alpha_2, \ldots, \alpha_n\}$ is an orthonormal subset in an inner product space V and if any $\beta \in V$, then

అంతరలబ్ధాంతరాళము V లో లంబాభిలంబ ఉపసమితి $S = \{\alpha_1, \alpha_2, \ldots, \alpha_n\}$ మరియు $\beta \in V$ కు

Options :

1. ✖ $\sum_{i=1}^{n} |\langle \beta, \alpha_i \rangle|^2 > \|\beta\|^2$

2. ✖ $\langle \alpha, \beta \rangle = \sum_{i=1}^{n} \langle \alpha, \alpha_i \rangle \langle \alpha_i, \beta \rangle$

3. ✖ $\langle \alpha, \beta \rangle < \sum_{i=1}^{n} \langle \alpha, \alpha_i \rangle \langle \alpha_i, \beta \rangle$

4. ✔ $\sum_{i=1}^{n} |\langle \beta, \alpha_i \rangle|^2 \le \|\beta\|^2$

Question Number : 17 Question Id : 8321476117 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

On the set $Q^+ = \{r / r > 0, \text{a rational number}\}$, the binary operation $*$ is defined by $a * b = \frac{ab}{3}, \forall\, a, b \in Q^+$. Then the inverse of an element $a \in Q^+$ is

సమితి $Q^+ = \{r / r > 0,$ అకరణీయ సంఖ్య$\}$ పై యుగ్మ పరిక్రియ $*$ ను $a * b = \frac{ab}{3}, \forall\, a, b \in Q^+$ గా నిర్వచిస్తే,

మూలకము $a \in Q^+$ యొక్క విలోమము

Options :

1. ✖ $\frac{a}{3}$

2. ✖ $\frac{3}{a}$

3. ✔ $\frac{9}{a}$

4. ✖ $\frac{a}{9}$

Question Number : 18 Question Id : 8321476118 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The order of the element i in the group $G = \{1, -1, i, -i\}$, where $i^2 = -1$, under the multiplication of complex numbers is

సంకీర్ణ సంఖ్యాగుణనము దృష్ట్యా, సమూహము $G = \{1, -1, i, -i\}$, $i^2 = -1$ లో మూలకము i యొక్క తరగతి

Options :

1. ✖ 1

2. ✖ 2

3. ✖ 3

4. ✔ 4

Question Number : 19 Question Id : 8321476119 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The identity element in the group $G = \left\{ \begin{pmatrix} a & a \\ a & a \end{pmatrix} / a \in R, a \neq 0 \right\}$ with respect to matrix multiplication is

మాత్రికా గుణనము దృష్ట్యా, సమూహము $G = \left\{ \begin{pmatrix} a & a \\ a & a \end{pmatrix} / a \in R, a \neq 0 \right\}$ లో తత్సమ మూలకము

Options :

1. ✖ $\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$

2. ✔ $\begin{pmatrix} \frac{1}{2} & \frac{1}{2} \\ \frac{1}{2} & \frac{1}{2} \end{pmatrix}$

3. ✖ $\begin{pmatrix} 1 & 1 \\ 1 & 1 \end{pmatrix}$

4. ✖ $\begin{pmatrix} \frac{1}{4} & \frac{1}{4} \\ \frac{1}{4} & \frac{1}{4} \end{pmatrix}$

Question Number : 20 Question Id : 8321476120 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The inverse of the element $\bar{3}$ in the group $G = \{\bar{1}, \bar{3}, \bar{5}, \bar{7}\}$ with respect to multiplication modulo 8 is

మాపము 8 దృష్ట్యా, గుణనము కింద సమూహము $G = \{\bar{1}, \bar{3}, \bar{5}, \bar{7}\}$ లో మూలకము $\bar{3}$ యొక్క విలోమము

Options :

1. ✔ $\bar{3}$

2. ✖ $\bar{7}$

3. ✖ $\bar{5}$

4. ✖ $\bar{1}$

Question Number : 21 Question Id : 8321476121 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The index of the subgroup $4Z$ in the group $(2Z,+)$ is

సమూహము $(2Z,+)$ లో ఉపసమూహము $4Z$ యొక్కసూచిక

Options :

1. ✖ ∞

2. ✖ 8

3. ✖ 4

4. ✔ 2

Question Number : 22 Question Id : 8321476122 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Consider the following statements:

A. Every quotient group of an abelian group is abelian.

B. Every quotient group of a cyclic group is cyclic.

Then

కింది అభిప్రాయాలను గమనించండి:

A. వినిమయ సమూహము యొక్క ప్రతి వ్యుత్పన్న సమూహము వినిమయము.

B. చక్రీయ సమూహము యొక్క ప్రతి వ్యుత్పన్న సమూహము చక్రీయము.

అయిన

Options :

1. ✖ Only A is correct
A మాత్రమే సత్యము

2. ✖ Only B is correct
B మాత్రమే సత్యము

3. ✔ Both A and B are correct
A, B లు రెండూ సత్యము

4. ✖ Both A and B are incorrect
A,B లు రెండూ అసత్యము

Question Number : 23 Question Id : 8321476123 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The inverse of the permutation $\begin{pmatrix} 1 & 2 & 3 & 4 \\ 1 & 3 & 4 & 2 \end{pmatrix}$ in S_4 is

S_4 లో ప్రస్తారము $\begin{pmatrix} 1 & 2 & 3 & 4 \\ 1 & 3 & 4 & 2 \end{pmatrix}$ యొక్క విలోమము

Options :

$\begin{pmatrix} 1 & 2 & 3 & 4 \\ 4 & 3 & 2 & 1 \end{pmatrix}$

1. ✖

$\begin{pmatrix} 1 & 2 & 3 & 4 \\ 1 & 4 & 2 & 3 \end{pmatrix}$

2. ✔

$\begin{pmatrix} 1 & 2 & 3 & 4 \\ 3 & 1 & 4 & 2 \end{pmatrix}$

3. ✖

$\begin{pmatrix} 1 & 2 & 3 & 4 \\ 1 & 3 & 2 & 4 \end{pmatrix}$

4. ✖

Question Number : 24 Question Id : 8321476124 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Order of the symmetric group S_4 is

సౌష్ఠవ సమూహము S_4 యొక్క తరగతి

Options :

1. ✖ 4

2. ✖ 12

3. ✔ 24

4. ✖ 8

Question Number : 25 Question Id : 8321476125 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The permutation $\begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 2 & 4 & 9 & 1 & 5 & 8 & 6 & 7 & 3 \end{pmatrix}$ in S_9 is a product of ______ cycles.

S_9 లో ప్రస్తారము $\begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 2 & 4 & 9 & 1 & 5 & 8 & 6 & 7 & 3 \end{pmatrix}$, ______ చక్రాల లబ్ధము.

Options :

1. ✔ 3

2. ✖ 2

3. ✖ 4

4. ✖ 5

Question Number : 26 Question Id : 8321476126 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The decomposition of the permutation $\begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ 6 & 5 & 2 & 4 & 3 & 1 & 7 \end{pmatrix}$ into transpositions is

ప్రస్తారము $\begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ 6 & 5 & 2 & 4 & 3 & 1 & 7 \end{pmatrix}$ యొక్క వ్యత్యయ విభజన

Options :

1. ✖ $(1\ 6)\ (2\ 5)\ (2\ 7)$

2. ✖ $(1\ 6)\ (2\ 5)\ (3\ 4)$

3. ✖ $(1\ 6)\ (2\ 5)\ (4\ 7)$

4. ✔ $(1\ 6)\ (2\ 5)\ (2\ 3)$

Question Number : 27 Question Id : 8321476127 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The number of generators of the cyclic group $(Z_{15},\oplus)$ are

చక్రీయ సమూహము $(Z_{15},\oplus)$ కు జనక మూలకాల సంఖ్య

Options :

1. ✖ 5

2. ✔ 8

3. ✖ 6

4. ✖ 7

Question Number : 28 Question Id : 8321476128 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The set of generators of the cyclic group $(Z_9,\oplus)$ are
చక్రీయ సమూహము $(Z_9,\oplus)$ యొక్క జనక మూలకాల సమితి

Options :

1. ✖ $\{\bar{2},\bar{4},\bar{5},\bar{7},\bar{8}\}$

2. ✖ $\{\bar{1},\bar{2},\bar{3},\bar{5},\bar{7},\bar{8}\}$

3. ✔ $\{\bar{1},\bar{2},\bar{4},\bar{5},\bar{7},\bar{8}\}$

4. ✖ $\{\bar{1},\bar{2},\bar{4},\bar{6},\bar{7},\bar{8}\}$

Question Number : 29 Question Id : 8321476129 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The zero-element and the unity element in the ring $(Z,*,\circ)$, where Z is the set of integers and $a*b=a+b+1$ and $a\circ b=a+b+ab$ are respectively

పూర్ణాంక సమితి Z పై యుగ్మ పరిక్రియలు $'*'$ మరియు $'\circ'$ లను $a*b=a+b+1$ మరియు $a\circ b=$

$a+b+ab$ గా నిర్వచిస్తే,వలయము $(Z,*,\circ)$ లో 0 –మూలకము మరియు తత్సమ మూలకము వరసగా

Options :

1. ✖ $1,-1$

2. ✖ $-1,1$

3. ✖ $1,0$

4. ✔ $-1,0$

Question Number : 30 Question Id : 8321476130 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following rings is not an integral domain?

క్రింది వలయాలలో ఏది పూర్ణాంక ప్రదేశము కాదు?

Options :

1. ✖ $(Z_{11},\oplus,\odot)$

2. ✔ $(Z_8,\oplus,\odot)$

3. ✖ $(Z,+,\cdot)$

4. ✖ $(Q,+,\cdot)$

Question Number : 31 Question Id : 8321476131 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following rings is not a field?

క్రింది వలయాలలో ఏది క్షేత్రము కాదు?

Options :

1. ✔ $(Z,+,\cdot)$

2. ✖ $(Q,+,\cdot)$

3. ✖ $(R,+,\cdot)$

4. ✖ $(C,+,\cdot)$

Question Number : 32 Question Id : 8321476132 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The set of units in the ring $(Q,+,\cdot)$ is

వలయము $(Q,+,\cdot)$ లో విలోమ్య మూలకాల (యూనిట్స్) సమితి

Options :

1. ✖ Z

2. ✖ $\{1,-1\}$

3. ✔ $Q^* = Q - \{0\}$

4. ✖ $\{1\}$

Question Number : 33 Question Id : 8321476133 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The set of idempotent elements in the ring $(Z_6, \oplus, \odot)$ is

వలయము $(Z_6, \oplus, \odot)$ అపరివర్తిత మూలకాల సమితి

Options :

1. ✖ $\{\bar{0}, \bar{2}, \bar{3}, \bar{4}\}$

2. ✖ $\{\bar{1}, \bar{2}, \bar{3}, \bar{4}\}$

3. ✖ $\{\bar{2}, \bar{5}\}$

4. ✔ $\{\bar{0}, \bar{1}, \bar{3}, \bar{4}\}$

Question Number : 34 Question Id : 8321476134 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The principal ideal generated by $\bar{5}$ in the ring $(Z_8, \oplus, \odot)$ is

వలయము $(Z_8, \oplus, \odot)$ లో మూలకము $\bar{5}$ చేత జనింపబడే ప్రధాన ఆదర్శము

Options :

1. ✖ $\{\bar{0}, \bar{3}, \bar{5}, \bar{7}\}$

2. ✔ Z_8

3. ✖ $\{\bar{0}, \bar{2}, \bar{3}, \bar{6}\}$

4. ✖ $\{\bar{0}, \bar{1}, \bar{3}, \bar{5}, \bar{7}\}$

Question Number : 35 Question Id : 8321476135 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The least upper bound of the set $\left\{1 + \frac{(-1)^n}{n} / \, n \in N\right\}$ is

సమితి $\left\{1 + \frac{(-1)^n}{n} / \, n \in N\right\}$ యొక్క కనిష్ఠ ఎగువ హద్దు

Options :

1. ✔ $\frac{3}{2}$

2. ✖ $\frac{1}{2}$

3. ✖ $\frac{-1}{2}$

4. ✖ $\frac{-3}{2}$

Question Number : 36 Question Id : 8321476136 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

If s_n is a sequence defined by $s_1 = 1$ and $s_{n+1} = \sqrt{2 + s_n}$, then $\lim \quad s_n =$

అనుక్రమము s_n ను $s_1 = 1$ మరియు $s_{n+1} = \sqrt{2 + s_n}$ గా నిర్వచిస్తే $\lim \quad s_n =$

Options :

1. ✖ $\sqrt{2}$

2. ✖ $2\sqrt{2}$

3. ✔ 2

4. ✖ 4

Question Number : 37 Question Id : 8321476137 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

For the sequence $\{(-1)^n n\}$, which of the following statements is false?

అనుక్రమము $\{(-1)^n n\}$ కు క్రింది అభిప్రాయాలలో ఏది అసత్యము?

Options :

1. ✖ Oscillates infinitely
అపరిమిత డోలనాత్మకము

2. ✔ Oscillates finitely
పరిమిత డోలనాత్మకము

3. ✖ Unbounded
అపరిబద్ధము

4. ✖ Diverges to $-\infty$ only
$-\infty$ కు మాత్రమే అపసరిస్తుంది

Question Number : 38 Question Id : 8321476138 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$\lim_{n\to\infty} \frac{n}{2^n} =$

Options :

1. ✖ $\frac{1}{2}$

2. ✖ 1

3. ✖ ∞

4. ✔ 0

Question Number : 39 Question Id : 8321476139 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The series $\sum \left(\frac{1+nx}{n}\right)^n$ is divergent if

శ్రేణి $\sum \left(\frac{1+nx}{n}\right)^n$ అపసరించుటకు ________ కావాలి.

Options :

1. ✖ $x > 1$

2. ✔ $x \geq 1$

3. ✖ $x < 1$

4. ✖ $x \leq 1$

Question Number : 40 Question Id : 8321476140 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

If $\sum u_n$ is a series of positive terms such that $\lim\ {u_n}^{1/n} = l$, then $\sum u_n$ converges if

ధనాత్మక పదాల శ్రేణి $\sum u_n$ కి $\lim\ {u_n}^{1/n} = l$ అయితే $\sum u_n$ అభిసరణ చెందుటకు ______ కావాలి.

Options :

1. ✔ $l < 1$

2. ✖ $l = 1$

3. ✖ $l > 1$

4. ✖ $l \geq 1$

Question Number : 41 Question Id : 8321476141 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

If the function $f(x) = x^{2023}$, then $\lim_{x \to 1} \frac{f(x)-f(1)}{x-1} =$

ప్రమేయము $f(x) = x^{2023}$ అయితే $\lim_{x \to 1} \frac{f(x)-f(1)}{x-1} =$

Options :

1. ✖ 2021

2. ✖ 2022

3. ✔ 2023

4. ✖ 2024

Question Number : 42 Question Id : 8321476142 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $[x]$ denotes the integer part of x, then the function $f(x) = x - [x]$ is continuous at

వాస్తవ సంఖ్య x యొక్క పూర్ణాంక భాగమును $[x]$ తో సూచిస్తే ప్రమేయము $f(x) = x - [x]$ కింది ఏ బిందువుల వద్ద అవిచ్ఛిన్నంగా ఉంటుంది?

Options :

1. ✖ All real values of x
అన్ని వాస్తవ సంఖ్యలు x ల వద్ద

2. ✔ Every non-integer x
అన్ని పూర్ణాంకేతర సంఖ్యలు x ల వద్ద

3. ✖ All rational numbers x
అన్ని అకరణీయ సంఖ్యలు x ల వద్ద

4. ✖ All irrational numbers x
అన్ని కరణీయ సంఖ్యలు x ల వద్ద

Question Number : 43 Question Id : 8321476143 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

For $a \neq 0$, if the function $f(x) = \frac{\sin^2 ax}{x^2}, x \neq 0$ is continuous at $x = 0$ and $f(0) = 1$, then $a =$

$a \neq 0$ కు ప్రమేయము $f(x) = \frac{\sin^2 ax}{x^2}, x \neq 0$ గా నిర్వచింపబడి, $x = 0$ వద్ద అవిచ్ఛిన్నము మరియు $f(0) = 1$ అయితే $a =$

Options :

1. ✖ ± 2

2. ✖ ± 4

3. ✖ $\pm \frac{1}{2}$

4. ✔ ± 1

Question Number : 44 Question Id : 8321476144 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If the function $f(x) = \frac{|x|}{x}, x \neq 0$ then f has

ప్రమేయము $f(x) = \frac{|x|}{x}, x \neq 0$ అయితే f కు

Options :

1. ✔ Jump discontinuity at $x = 0$

   $x = 0$ వద్ద లంఘన విచ్ఛిన్నత ఉంటుంది

2. ✖ Removable discontinuity at $x = 0$

   $x = 0$ వద్ద నివార్య విచ్ఛిన్నత ఉంటుంది

3. ✖ Finite discontinuity at $x = 0$

   $x = 0$ వద్ద పరిమిత విచ్ఛిన్నత ఉంటుంది

4. ✖ Infinite discontinuity at $x = 0$

   $x = 0$ వద్ద అపరిమిత విచ్ఛిన్నత ఉంటుంది

Question Number : 45 Question Id : 8321476145 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If the function $f(x) = x|x|$, then $f'(x) =$

ప్రమేయము $f(x) = x|x|$ అయితే $f'(x) =$

Options :

1. ✖ $|x|$

2. ✖ x

3. ✔ $2|x|$

4. ✖ $2x$

Question Number : 46 Question Id : 8321476146 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If the function $f(x) = \begin{cases} 2x+3, & x \le 2 \\ 4x-1, & x > 2 \end{cases}$, then

ప్రమేయము $f(x) = \begin{cases} 2x+3, & x \le 2 \\ 4x-1, & x > 2 \end{cases}$ అయితే

Options :

1. ✖ $Lf'(2) = 3 , Rf'(2) = 4$

2. ✔ $Lf'(2) = 2 , Rf'(2) = 4$

3. ✖ $Lf'(2) = 2 , Rf'(2) = 1$

4. ✖ $Lf'(2) = 2\ ,\ Rf'(2) = 2$

Question Number : 47 Question Id : 8321476147 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The function $f(x) = \sqrt{25 - x^2}$ is decreasing in the interval ______ .

ప్రమేయము $f(x) = \sqrt{25 - x^2}$ అవరోహణ చెందే అంతరము ______ .

Options :

1. ✖ $(-5,5)$

2. ✖ $[-5,0]$

3. ✖ $(0,5]$

4. ✔ $(0,5)$

Question Number : 48 Question Id : 8321476148 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The function $f(x) = \frac{\log x}{x}$ has stationary value at _______ .

ప్రమేయము $f(x) = \frac{\log x}{x}$, ____________ వద్ద స్థిర విలువను కలిగి ఉంటుంది.

Options :

1. ✔ e

2. ✖ 1

3. ✖

$\frac{1}{e}$

4. ✖ 0

Question Number : 49 Question Id : 8321476149 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The value of $'c'$ of Rolle's theorem for the function $f(x) = \sin x$ in $[0, \pi]$ is

అంతరము $[0, \pi]$ లో ప్రమేయము $f(x) = \sin x$ కు రోలే సిద్ధాంతపు $'c'$ విలువ

Options :

1. ✖ π

2. ✖ $\frac{\pi}{4}$

3. ✔ $\frac{\pi}{2}$

4. ✖ $\frac{\pi}{3}$

Question Number : 50 Question Id : 8321476150 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The value of $'c'$ of Cauchy's Mean Value theorem for $f(x) = \sqrt{x}, g(x) = \frac{1}{\sqrt{x}}$ in $[a, b]$ is

అంతరము $[a, b]$ లో ప్రమేయాలు $f(x) = \sqrt{x}, g(x) = \frac{1}{\sqrt{x}}$ లకు కోషి మధ్యంతర విలువ సిద్ధాంతపు $'c'$ విలువ

Options :

1. ✖ ab

2. ✔ $\sqrt{ab}$

3. ✖ $\frac{a+b}{2}$

4. ✖ $\frac{\sqrt{ab}}{2}$

Question Number : 51 Question Id : 8321476151 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

For the function $f(x) = x$ on $[0,1]$ and the partition $P = \left\{0, \frac{1}{3}, \frac{2}{3}, 1\right\}$ of $[0,1]$, the $U(P,f)$ is

అంతరము $[0,1]$ పై $f(x) = x$ గా నిర్వచింపబడిన ప్రమేయానికి మరియు $[0,1]$ యొక్క విభజన $P = \left\{0, \frac{1}{3}, \frac{2}{3}, 1\right\}$ దృష్ట్యా $U(P,f) =$

Options :

1. ✖ 1

2. ✖ $\frac{1}{2}$

3. ✖ $\frac{1}{3}$

4. ✔ $\frac{2}{3}$

Question Number : 52 Question Id : 8321476152 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $f(x)$ be the function defined on the $[0,1]$ by $f(x) = \begin{cases} 0, & x \text{ is irrational} \\ 1, & x \text{ is rational} \end{cases}$. Then

$\underline{\int_0^1} f(x)\,dx =$ ________ and $\overline{\int_0^1} f(x)\,dx =$ ________.

అంతరము $[0,1]$ పై ప్రమేయము $f(x)$ ను $f(x) = \begin{cases} 0, & x \text{ కరణీయ సంఖ్య} \\ 1, & x \text{ అకరణీయ సంఖ్య} \end{cases}$ గా నిర్వచిస్తే

$\underline{\int_0^1} f(x)\,dx =$ ________ మరియు $\overline{\int_0^1} f(x)\,dx =$ ________.

Options :

1. ✖ 1,0

2. ✖ 1,1

3. ✔ 0,1

4. ✖ −1,1

Question Number : 53 Question Id : 8321476153 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

If $f:[a,b] \to R$ is a bounded function and if P^* is a refinement of the partition P of $[a,b]$, then

$f:[a,b] \to R$ పరిబద్ధ ప్రమేయము మరియు $[a,b]$ యొక్క విభజన P కు P^* సూక్ష్మత అయితే

Options :

1. ✔ $L(P^*, f) \geq L(P, f)$

2. ✖ $U(P^*, f) \geq U(P, f)$

3. ✖ $L(P^*, f) \leq L(P, f)$

4. ✖ $U(P^*, f) \leq L(P^*, f)$

Question Number : 54 Question Id : 8321476154 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$\int_{-1}^{1} x|x|\, dx =$

Options :

1. ✖ 0

2. ✔ $\frac{1}{3}$

3. ✖ $\frac{-1}{3}$

4. ✖ $\frac{2}{3}$

Question Number : 55 Question Id : 8321476155 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$\int_0^2 \int_0^x y\, dx\, dy =$

Options :

1. ✖ $\frac{8}{3}$

2. ✖ $\frac{2}{3}$

3. ✖ $\frac{1}{3}$

4. ✔ $\frac{4}{3}$

Question Number : 56 Question Id : 8321476156 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$$\int_0^4 \int_0^{x^2} e^{y/x}\, dx\, dy =$$

Options :

1. ✖ $3e^4 + 7$

2. ✖ $3e^4 + 8$

3. ✔ $3e^4 - 7$

4. ✖ $3e^4 - 8$

Question Number : 57 Question Id : 8321476157 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If the vector $\bar{r} = a\cos t\,\bar{\imath} + a\sin t\,\bar{\jmath} + bt\bar{k}$, then $\left|\frac{d\,\bar{r}}{dt}\right| =$

సదిశ $\bar{r} = a\cos t\,\bar{\imath} + a\sin t\,\bar{\jmath} + bt\bar{k}$ అయితే $\left|\frac{d\,\bar{r}}{dt}\right| =$

Options :

1. ✔

$\sqrt{a^2 + b^2}$

2. ✖ $\sqrt{b^2 - a^2}$

3. ✖ $a^2 + b^2$

4. ✖ $b^2 - a^2$

Question Number : 58 Question Id : 8321476158 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The directional derivative of $\varphi = x^2yz + 4xz^2$ at the point $(1,-2,1)$ in the direction of the vector $2\bar{i} - \bar{j} - 2\bar{k}$ is

ప్రమేయము $\varphi = x^2yz + 4xz^2$ కు బిందువు $(1,-2,1)$ వద్ద సదిశ $2\bar{i} - \bar{j} - 2\bar{k}$ దిశలో దైశిక వ్యుత్పన్నము

Options :

1. ✖ $\frac{19}{3}$

2. ✖ $\frac{3}{37}$

3. ✖ $\frac{3}{19}$

4. ✔ $\frac{37}{3}$

Question Number : 59 Question Id : 8321476159 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The maximum value of the directional derivative of $\varphi = 2x^2 - y - z^4$ at the point $(2,-1,1)$ is

ప్రమేయము $\varphi = 2x^2 - y - z^4$ కు బిందువు $(2,-1,1)$ వద్ద దైశిక వ్యుత్పన్నము యొక్క గరిష్ఠ విలువ

Options :

1. ✖ 6

2. ✔ 9

3. ✖ 12

4. ✖ 15

Question Number : 60 Question Id : 8321476160 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $\bar{r} = x\bar{i} + y\bar{j} + z\bar{k}$ and $\bar{a}$ is a constant vector then $\frac{\partial}{\partial x}(\bar{a}\cdot\bar{r})\bar{i} + \frac{\partial}{\partial x}(\bar{a}\cdot\bar{r})\bar{j} + \frac{\partial}{\partial x}(\bar{a}\cdot\bar{r})\bar{k} =$

సదిశ $\bar{r} = x\bar{i} + y\bar{j} + z\bar{k}$ మరియు $\bar{a}$ స్థిర సదిశ అయితే $\frac{\partial}{\partial x}(\bar{a}\cdot\bar{r})\bar{i} + \frac{\partial}{\partial x}(\bar{a}\cdot\bar{r})\bar{j} + \frac{\partial}{\partial x}(\bar{a}\cdot\bar{r})\bar{k} =$

Options :

1. ✖ $\bar{0}$

2. ✖ $2\bar{a}$

3. ✔ $\bar{a}$

4. ✖ $3\bar{a}$

Question Number : 61 Question Id : 8321476161 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If the vector function $\bar{F} = (x+3y)\bar{i} + (y-2z)\bar{j} + (x+kz)\bar{k}$ is solenoidal, then the value of $k =$ ____.

సదిశా ప్రమేయము $\bar{F} = (x+3y)\bar{i} + (y-2z)\bar{j} + (x+kz)\bar{k}$ సోలెనోయిడల్ అయిన k యొక్క విలువ

Options :

1. ✔ -2

2. ✖ 2

3. ✖ $\frac{1}{2}$

4. ✖ $\frac{-1}{2}$

Question Number : 62 Question Id : 8321476162 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $\bar{e}$ is a unit vector and $\bar{r} = x\bar{i} + y\bar{j} + z\bar{k}$ then $curl(\bar{e} \cdot \bar{r})\bar{e} =$ ____.

$\bar{e}$ ఒక యూనిట్ సదిశ మరియు $\bar{r} = x\bar{i} + y\bar{j} + z\bar{k}$ అయితే కర్ల్$(\bar{e} \cdot \bar{r})\bar{e} =$ ____.

Options :

1. ✖ $\bar{e}$

2. ✖ $\bar{r}$

3. ✔ $\bar{0}$

4. ✖ $\bar{e} \times \bar{r}$

Question Number : 63 Question Id : 8321476163 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

If $\bar{F} = y\bar{i} - x\bar{j}$ and C is the arc of the curve $y = x^2$ from $(0,0)$ to $(1,1)$, then $\int_C \bar{F} \cdot d\bar{r} =$

సదిశ $\bar{F} = y\bar{i} - x\bar{j}$ మరియు వక్రము $y = x^2$ పై బిందువులు $(0,0)$ నుండి $(1,1)$ ల మధ్య ఉండే వక్ర చాపము C అయితే $\int_C \bar{F} \cdot d\bar{r} =$

Options :

1. ✖ $\frac{1}{3}$

2. ✖ $\frac{1}{2}$

3. ✖ $-\frac{1}{2}$

4. ✔ $-\frac{1}{3}$

Question Number : 64 Question Id : 8321476164 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

If S is a closed surface, V is the volume enclosed by S and $\bar{n}$ is the unit normal to S, then $\int_S \bar{r} \cdot \bar{n}\, ds =$

S ఒక సంవృత వక్ర తలము, S చేత పరిబద్ధమైన ఘనము V మరియు S కు యూనిట్ లంబము $\bar{n}$ అయితే

$\int_S \bar{r} \cdot \bar{n}\, ds =$

Options :

1. ✖ V

2. ✔ $3V$

3. ✖ $2V$

4. ✖ $4V$

Question Number : 65 Question Id : 8321476165 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If C is the circle $x^2 + y^2 = 1$, then $\oint_C (xdy - ydx) =$

$x^2 + y^2 = 1$ చేత సూచింపబడే వృత్తము C అయితే $\oint_C (xdy - ydx) =$

Options :

1. ✖ π

2. ✔ 2π

3. ✖ 3π

4. ✖ 4π

Question Number : 66 Question Id : 8321476166 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The general solution of the differential equation $\frac{dy}{dx} = e^{x-y} + x^2e^{-y}$ is
అవకలన సమీకరణము $\frac{dy}{dx} = e^{x-y} + x^2e^{-y}$ యొక్క సాధారణ సాధన

Options :

1. ✔ $3(e^y - e^x) = x^3 + c$

2. ✖ $3(e^y - e^x) + x^3 = c$

3. ✖ $(e^y + e^x) + x^3 = c$

4. ✖ $(e^y - e^x) = x^3 + c$

Question Number : 67 Question Id : 8321476167 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The general solution of the differential equation $\log\left(\frac{dy}{dx}\right) = ax + by$ is
అవకలన సమీకరణము $\log\left(\frac{dy}{dx}\right) = ax + by$ యొక్క సాధారణ సాధన

Options :

1. ✖ $ae^{ax} - be^{-by} = c$

2. ✖ $ae^{ax} + be^{-by} = c$

3. ✔ $be^{ax} + ae^{-by} = c$

4. ✖ $be^{-ax} - ae^{by} = c$

Question Number : 68 Question Id : 8321476168 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The integrating factor of the equation $x^2ydx-(x^3+y^3)dy=0$ is

సమీకరణము $x^2ydx-(x^3+y^3)dy=0$ యొక్క సమాకలన గుణకము

Options :

1. ✖ $\frac{1}{y^4}$

2. ✖ $\frac{1}{y^2}$

3. ✖ $-\frac{1}{y^2}$

4. ✔ $-\frac{1}{y^4}$

Question Number : 69 Question Id : 8321476169 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The integrating factor of the equation $2xydy-(x^2+y^2+1)dx=0$ is

సమీకరణము $2xydy-(x^2+y^2+1)dx=0$ యొక్క సమాకలన గుణకము

Options :

1. ✖ $-\frac{1}{x^2}$

2. ✔ $\frac{1}{x^2}$

3. ✖ $\frac{1}{x}$

4. ✖ $-\frac{1}{x}$

Question Number : 70 Question Id : 8321476170 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The integrating factor of the equation $(1-x^2)\frac{dy}{dx} + 2xy = x\sqrt{1-x^2}$ is

సమీకరణము $(1-x^2)\frac{dy}{dx} + 2xy = x\sqrt{1-x^2}$ యొక్క సమాకలన గుణకము

Options :

1. ✖ $\frac{1}{1+x^2}$

2. ✖ $1 + x^2$

3. ✔ $\frac{1}{1-x^2}$

4. ✖ $1 - x^2$

Question Number : 71 Question Id : 8321476171 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The orthogonal trajectories of the family of parabolas $x^2 = 4ay$ are

పరావలయాల వ్యవస్థ $x^2 = 4ay$ ల యొక్క లంబ సంఛేదనల వ్యవస్థ

Options :

1. ✖ $x^2 + y^2 = c$

2. ✖ $x^2 - y^2 = c$

3. ✖ $\frac{x^2}{c} - \frac{y^2}{2c} = 1$

4. ✔ $\frac{x^2}{2c} + \frac{y^2}{c} = 1$

Question Number : 72 Question Id : 8321476172 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The orthogonal trajectories of the family of curves $r^n = a^n \cos n\theta$ is

వక్రాల వ్యవస్థ $r^n = a^n \cos n\theta$ ల యొక్క లంబ సంఛేదనల వ్యవస్థ

Options :

1. ✔ $r^n = c \sin n\theta$

2. ✖ $r^n = c \cos n\theta$

3. ✖ $a^n = \sin n\theta$

4. ✖ $a^n = \cos n\theta$

Question Number : 73 Question Id : 8321476173 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The general solution of the equation $xp^2 = (x - a)^2$ is

సమీకరణము $xp^2 = (x - a)^2$ యొక్క సాధారణ సాధన

Options :

1. ✖ $(y+c)^2 = \frac{4}{9}x(x+3a)^2$

2. ✖ $(y+c)^2 = \frac{4}{9}(x-3a)$

3. ✔ $(y+c)^2 = \frac{4}{9}x(x-3a)^2$

4. ✖ $(y+c)^2 = \frac{4}{9}(x+3a)$

Question Number : 74 Question Id : 8321476174 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The general solution of the equation $x = y + p^2$ is

సమీకరణము $x = y + p^2$ యొక్క సాధారణ సాధన

Options :

1. ✖ $x = c + 2[p + \log(p-1)]$

2. ✔ $x = c - 2[p + \log(p-1)]$

3. ✖ $x = c + [p + \log(p-1)]$

4. ✖ $x = c - [p + \log(p-1)]$

Question Number : 75 Question Id : 8321476175 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The general solution of the equation $p = \log(px - y)$ is
సమీకరణము $p = \log(px - y)$ యొక్క సాధారణ సాధన

Options :

1. ✖ $y = xe^c$

2. ✖ $y = \frac{cx}{e^c}$

3. ✖ $y = x + e^c$

4. ✔ $y = cx - e^c$

Question Number : 76 Question Id : 8321476176 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The complimentary function of the equation $[(D+2)(D-1)^3]y = e^x$ is
సమీకరణము $[(D+2)(D-1)^3]y = e^x$ యొక్క పూరక ప్రమేయము

Options :

1. ✖ $y = (c_1 + c_2x + c_3x^2)e^x$

2. ✖ $y = (c_1 + c_2x + c_3x^2)e^{-x} + c_4e^{-2x}$

3. ✔ $y = (c_1 + c_2x + c_3x^2)e^x + c_4e^{-2x}$

4. ✖ $y = (c_1 + c_2x + c_3x^2)e^{-x}$

Question Number : 77 Question Id : 8321476177 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The complimentary function of the equation $[D^2 + 4]y = 4\tan 2x$ is

సమీకరణము $[D^2 + 4]y = 4\tan 2x$ యొక్క పూరక ప్రమేయము

Options :

1. ✔ $c_1 \cos 2x + c_2 \sin 2x$

2. ✖ $c_1 \cos x + c_2 \sin x$

3. ✖ $c_1 \cos 4x + c_2 \sin 4x$

4. ✖ $c_1 \cos 2x \sin 2x$

Question Number : 78 Question Id : 8321476178 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The particular value of the equation $\frac{1}{D-2} e^{2x}$ is

సమీకరణము $\frac{1}{D-2} e^{2x}$ యొక్క ప్రత్యేక విలువ

Options :

1. ✖ e^{2x}

2. ✖ xe^{x}

3. ✖ e^{x}

4. ✔ xe^{2x}

Question Number : 79 Question Id : 8321476179 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The particular integral of the equation $(D^2 + a^2)y = \sin ax$ is

సమీకరణము $(D^2 + a^2)y = \sin ax$ యొక్క ప్రత్యేక ఇంటిగ్రల్ విలువ

Options :

1. ✖ $\frac{x}{2a}\cos ax$

2. ✔ $-\frac{x}{2a}\cos ax$

3. ✖ $-\frac{x}{a}\cos ax$

4. ✖ $\frac{x}{a}\cos ax$

Question Number : 80 Question Id : 8321476180 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A part of the complimentary function of the equation
$xy'' - 2(x+1)y' + (x+2)y = (x-2)e^{2x}$ is

సమీకరణము $xy'' - 2(x+1)y' + (x+2)y = (x-2)e^{2x}$ యొక్క పూరక ప్రమేయములోని ఒక భాగము

Options :

1. ✖

$y = x$

2. ✖ $y = -x$

3. ✔ $y = e^x$

4. ✖ $y = e^{-x}$

Question Number : 81 Question Id : 8321476181 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Equation to the plane through the point P on y –axis which is equidistant from the points $A = (4,-3,7)$ and $B = (2,-1,1)$ is

y –అక్షముపై బిందువు P ద్వారా పోతూ, బిందువులు $A = (4,-3,7)$ మరియు $B = (2,-1,1)$ లకు

సమాన దూరములో గల సమతలము యొక్క సమీకరణము

Options :

1. ✔ $x - y + 3z - 17 = 0$

2. ✖ $x + y - 3z - 17 = 0$

3. ✖ $x - y + 3z - 34 = 0$

4. ✖ $x + y - 3z - 34 = 0$

Question Number : 82 Question Id : 8321476182 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The equation of the plane through the point $(4,4,0)$ and perpendicular to the planes $x + 2y + 2z = 0$ and $3x + 3y + 2z - 8 = 0$ is

బిందువు $(4,4,0)$ ద్వారా పోతూ మరియు సమతలాలు $x + 2y + 2z = 0$ మరియు $3x + 3y + 2z - 8 = 0$ లకు లంబంగా ఉండే సమతలము యొక్క సమీకరణము

Options :

1. ✖ $2x + 4y + 3z + 8 = 0$

2. ✖ $2x + 4y - 3z + 8 = 0$

3. ✖ $2x - 4y - 3z - 8 = 0$

4. ✔ $2x - 4y + 3z + 8 = 0$

Question Number : 83 Question Id : 8321476183 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The foot of the perpendicular from the origin to a plane is $(2,-3,4)$. The equation of the plane is

ఒక సమతలానికి మూల బిందువు నుండి గీసిన లంబ పాదము $(2,-3,4)$ అయిన ఆ సమతలము యొక్క సమీకరణము

Options :

1. ✖ $2x + 3y + 4z = 29$

2. ✔ $2x - 3y + 4z = 29$

3. ✖ $2x - 3y + 4z = 11$

$2x + 3y + 4z = 11$

4. ✖

Question Number : 84 Question Id : 8321476184 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The angle between the planes $2x - 3y + 4z + 11 = 0$ and $3x - 2y - 3z + 27 = 0$ is

సమతలాలు $2x - 3y + 4z + 11 = 0$ మరియు $3x - 2y - 3z + 27 = 0$ ల మధ్య కోణము

Options :

1. ✖ $\frac{\pi}{6}$

2. ✖ $\frac{\pi}{4}$

3. ✖ $\frac{\pi}{3}$

4. ✔ $\frac{\pi}{2}$

Question Number : 85 Question Id : 8321476185 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The distance between the parallel planes $2x - 2y + z + 3 = 0$ and $4x - 4y + 2z + 5 = 0$ is

సమాంతర తలాలు $2x - 2y + z + 3 = 0$ మరియు $4x - 4y + 2z + 5 = 0$ ల మధ్య దూరము

Options :

1. ✖ $\frac{1}{3}$

2. ✖ $\frac{1}{5}$

3. ✔ $\frac{1}{6}$

4. ✖ $\frac{1}{18}$

Question Number : 86 Question Id : 8321476186 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The equation of the plane through the line of intersection of the planes $x + y + z = 1$ and $2x + 3y - z = -4$ and is parallel to x −axis is

తలాలు $x + y + z = 1$ మరియు $2x + 3y - z = -4$ ల ఛేదన రేఖ ద్వారా పోతూ x −అక్షానికి సమాంతరంగా ఉండే సమతలము యొక్క సమీకరణము

Options :

1. ✔ $y - 3z + 6 = 0$

2. ✖ $y + 3z + 6 = 0$

3. ✖ $y - 3z - 6 = 0$

4. ✖ $y + 3z - 6 = 0$

Question Number : 87 Question Id : 8321476187 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

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

సరళ రేఖలు $\frac{x-1}{-3}=\frac{y-2}{2k}=\frac{z-3}{2}$ మరియు $\frac{x-1}{3k}=\frac{y-5}{1}=\frac{z-6}{-5}$ లంబంగా ఉంటే, k యొక్క విలువ

Options :

1. ✔ $\frac{-10}{7}$

2. ✖ $\frac{10}{7}$

3. ✖ $\frac{-7}{10}$

4. ✖ $\frac{-7}{10}$

Question Number : 88 Question Id : 8321476188 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The image of the point $(1,3,4)$ in the plane $2x-y+z+3=0$ is

తలము $2x-y+z+3=0$ దృష్ట్యా బిందువు $(1,3,4)$ యొక్క ప్రతిబింబము

Options :

1. ✖ $(3,5,2)$

2. ✔ $(-3,5,2)$

3. ✖ $(-3,-5,2)$

4. ✖ $(3,-5,-2)$

Question Number : 89 Question Id : 8321476189 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Equation to the plane containing the line $\frac{x+1}{-3}=\frac{y-3}{2}=\frac{z+2}{1}$ and the point $(0,7,-7)$ is

సరళరేఖ $\frac{x+1}{-3}=\frac{y-3}{2}=\frac{z+2}{1}$ ను మరియు బిందువు $(0,7,-7)$ ను కలిగిఉన్న సమతలము యొక్క సమీకరణము

Options :

1. ✖ $x-y-z=0$

2. ✖ $x+y-z=0$

3. ✖ $x-y+z=0$

4. ✔ $x+y+z=0$

Question Number : 90 Question Id : 8321476190 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The distance of the point $(-1,-5,-10)$ from the point of intersection of the line $\frac{x-2}{2}=\frac{y+1}{4}=\frac{z-2}{12}$ and the plane $x-y+z=5$ is

సరళరేఖ $\frac{x-2}{2}=\frac{y+1}{4}=\frac{z-2}{12}$ మరియు సమతలము $x-y+z=5$ ల ఖండన బిందువు మరియు బిందువు $(-1,-5,-10)$ ల మధ్య దూరము

Options :

1. ✖ 10

2. ✖ 12

3. ✔ 13

4. ✖ 5

Question Number : 91 Question Id : 8321476191 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The perpendicular distance of the point $P = (1,2,3)$ from the line $\frac{x-6}{3} = \frac{y-7}{2} = \frac{z-7}{-2}$ is

బిందువు $P = (1,2,3)$ నుండి సరళరేఖ $\frac{x-6}{3} = \frac{y-7}{2} = \frac{z-7}{-2}$ కు లంబ దూరము

Options :

1. ✖ -7

2. ✔ 7

3. ✖ -3

4. ✖ 3

Question Number : 92 Question Id : 8321476192 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If the line $\frac{x+1}{-1} = \frac{y+2}{3} = \frac{z+5}{k}$ lies in the plane $x + 2y - z = 0$, then the value of k is

సరళరేఖ $\frac{x+1}{-1} = \frac{y+2}{3} = \frac{z+5}{k}$ సమతలము $x + 2y - z = 0$ పై ఉంటే, k విలువ

Options :

1. ✔ 5

2. ✖ -5

3. ✖ -1

4. ✖ 1

Question Number : 93 Question Id : 8321476193 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The radius and centre of the sphere through (0,0,0) and making intercepts 3,4,5 on the axes is

బిందువు (0,0,0) ద్వారా పోతూ, అక్షాలపై 3,4,5 ఖండాలు చేసే గోళము యొక్క వ్యాసార్ధము మరియు కేంద్రములు వరసగా

Options :

1. ✖ $5; \left(\frac{-3}{2}, -2, \frac{-5}{2}\right)$

2. ✖ $5\sqrt{2}; (-3, -4, -5)$

3. ✔ $\frac{5}{\sqrt{2}}; \left(\frac{3}{2}, 2, \frac{5}{2}\right)$

4. ✖ $5\sqrt{2}; (3,4,5)$

Question Number : 94 Question Id : 8321476194 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The equation of the sphere with (1,2,3) and (2,3,4) as the ends of a diameter is

బిందువులు (1,2,3) మరియు (2,3,4) లను వ్యాసాగ్రములుగా గల గోళము యొక్క సమీకరణము

Options :

1. ✖ $x^2 + y^2 + z^2 + 3x + 5y + 7z + 20 = 0$

2. ✖ $x^2 + y^2 + z^2 - 3x - 5y - 7z - 20 = 0$

3. ✖ $x^2 + y^2 + z^2 + 3x + 5y + 7z - 20 = 0$

4. ✔ $x^2 + y^2 + z^2 - 3x - 5y - 7z + 20 = 0$

Question Number : 95 Question Id : 8321476195 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The point of contact of the plane $2x - 2y + z + 12 = 0$ and the sphere $x^2 + y^2 + z^2 + 2x - 4y + 2z - 3 = 0$ is

సమతలము $2x - 2y + z + 12 = 0$ మరియు గోళము $x^2 + y^2 + z^2 + 2x - 4y + 2z - 3 = 0$

యొక్క స్పర్శ బిందువు

Options :

1. ✖ $(-1,0,-2)$

2. ✔ $(-1,4,-2)$

3. ✖ $(3,4,-2)$

4. ✖ $(2, -2, 1)$

Question Number : 96 Question Id : 8321476196 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The pole of the plane $x - y + 5z - 3 = 0$ with respect to the sphere $x^2 + y^2 + z^2 = 9$ is

గోళము $x^2 + y^2 + z^2 = 9$ దృష్ట్యా, సమతలము $x - y + 5z - 3 = 0$ యొక్క ధృవము

Options :

1. ✔ $(3, -3, 15)$

2. ✖ $(1, -1, 5)$

3. ✖ $(3, 3, 15)$

4. ✖ $(3, -3, 5)$

Question Number : 97 Question Id : 8321476197 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The radical plane of the spheres $x^2 + y^2 + z^2 + 4y = 0$ and $x^2 + y^2 + z^2 + 2x + 2y + 2z + 2 = 0$ is

గోళాలు $x^2 + y^2 + z^2 + 4y = 0$ మరియు $x^2 + y^2 + z^2 + 2x + 2y + 2z + 2 = 0$ ల మూలతలము

Options :

1. ✖ $x + y + z + 1 = 0$

2. ✖ $x - y - z + 1 = 0$

3. ✖ $x - y - z - 1 = 0$

4. ✔ $x - y + z + 1 = 0$

Question Number : 98 Question Id : 8321476198 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The equation to the cone which contains the three coordinate axes and the lines

$\frac{x}{1} = \frac{y}{-2} = \frac{z}{3}; \frac{x}{-1} = \frac{y}{1} = \frac{z}{1}$ is

మూడు నిరూపాక్షకాలను మరియు సరళరేఖలు $\frac{x}{1} = \frac{y}{-2} = \frac{z}{3}; \frac{x}{-1} = \frac{y}{1} = \frac{z}{1}$ లను కలిగి ఉండే శంఖువు యొక్క సమీకరణము

Options :

1. ✖ $5yz - 8zx - 3xy = 0$

2. ✖ $5yz + 8zx + 3xy = 0$

3. ✔ $5yz + 8zx - 3xy = 0$

4. ✖ $5yz - 8zx + 3xy = 0$

Question Number : 99 Question Id : 8321476199 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The equation of the cone with vertex at the origin and whose base curve is $z = 2$, $x^2 + y^2 = 4$ is

మూల బిందువు శీర్షము మరియు $z = 2, x^2 + y^2 = 4$ భూవక్రముగా గల శంఖువు యొక్క సమీకరణము

Options :

1. ✖ $x^2 + y^2 + z^2 = 0$

2. ✔ $x^2 + y^2 = z^2$

3. ✖ $x^2 + y^2 + 4z^2 = 0$

4. ✖ $4x^2 + 4y^2 = z^2$

Question Number : 100 Question Id : 8321476200 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The equation to the enveloping cone of the sphere $x^2 + y^2 + z^2 + 2x - 2y = 2$ with its vertex at $(1,1,1)$ is

బిందువు $(1,1,1)$ ని శీర్షముగా కలిగి ఉండి, గోళము $x^2 + y^2 + z^2 + 2x - 2y = 2$ నకు స్పర్శ శంఖువు యొక్క సమీకరణము

Options :

1. ✖ $3x^2 - y^2 + 4zx - 6x + 2y - 4z + 6 = 0$

2. ✖ $3x^2 + y^2 + 4zx + 6x + 2y + 4z + 6 = 0$

3. ✔ $3x^2 - y^2 + 4zx - 10x + 2y - 4z + 6 = 0$

4. ✖ $$3x^2 + y^2 + 4zx + 10x + 2y - 4z + 6 = 0$$