

PR IX (A-I-AP1) 26
Mathematics (New)
9th (Fresh/Reappear)

- ۱۔ ہر سوال کے سامنے چار دائرے دیئے گئے ہیں، صرف صحیح جواب والا دائرہ بھریں۔
۲۔ دائروں کو شیلڈ (بھرنے) کے لیے نیلے یا کالے رنگ کا مارکر استعمال کریں۔
۳۔ جواب میں ایک سے زائد دائرے بھرنے سے جواب غلط تصور ہوگا۔

Time: 20 Minutes

SECTION-A

Marks: 15

Q1: Choose the correct option i.e, A,B,C or D?

- The order of the matrix $\begin{bmatrix} 2 & 5 & 7 \end{bmatrix}$ is:
☐ 1×1 ☒ 1×3 ☐ 3×1 ☐ 2×1
- A diagonal matrix in which all the diagonal elements are equal, is called.
☐ Null matrix ☐ Row matrix
☒ Scalar matrix ☐ Column matrix
- The determinant of the matrix $\begin{bmatrix} 4 & 5 \\ 8 & 6 \end{bmatrix}$ is.
☐ 3 ☐ -3 ☐ 16 ☒ -16
- The property used in the equation $2+3=3+2$ is.
☐ Associative ☒ Commutative ☐ Distributive ☐ Closure
- If $x=y$ then $2x=2y$, the property used is.
☒ Multiplicative ☐ Reflective ☐ Transitive ☐ Additive
- The decimal representation of $\frac{5}{7}$ is.
☒ $0.\overline{142857}$ ☐ $0.\overline{162357}$ ☐ $0.\overline{132857}$ ☐ $0.\overline{192857}$
- Radical form of the expression $a^{\frac{2}{3}}$ is.
☐ $\sqrt[3]{a^2}$ ☒ $\sqrt{a^3}$ ☐ $\sqrt[3]{a^{\frac{1}{2}}}$ ☐ $\sqrt{a^{\frac{3}{2}}}$
- The simplified form of the expression $\frac{a^2 \times a^3}{a^3}$ is.
☐ a^4 ☒ a^3 ☐ a^5 ☐ a^2
- Conjugate of the complex number $-5-4i$ is.
☐ $5-4i$ ☐ $5+4i$ ☒ $-5+4i$ ☐ $4-5i$
- If $\log_x 81 = 4$ then the value of x is.
☐ 9 ☒ 4 ☐ 3 ☐ 2
- The value of the algebraic expression $\frac{2x^2+5}{x-2}$ at $x=3$ is.
☐ 908 ☐ 25 ☒ 23 ☐ 20
- One of the factor of the expression $x^2 - 5x + 4$ is.

- ☐ $x-2$ ☐ $x-3$ ☒ $x-4$ ☐ $x-5$
13. The HCF of the algebraic expression (x^2-4) and $x-2$ is.
- ☐ $x+2$ ☒ $x-2$ ☐ $x-4$ ☐ x^2-4
14. The linear equation $\frac{x}{2} + 3x = 2$ is true for the value of x .
- ☐ $\frac{1}{2}$ ☐ $\frac{3}{2}$ ☒ $\frac{4}{7}$ ☐ $\frac{3}{4}$
15. The point $\left(-\frac{1}{2}, 0\right)$ lies on the line having equation.
- ☐ $y=4x+1$ ☒ $y=2x+1$ ☐ $y=x+1$ ☐ $2y=3x+1$

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Note: Time allowed for Section-B & Section-C is 2:40 hours.

SECTION-B

Marks: 36

Q2: Attempt any NINE parts. Each part carries FOUR marks.

- Solve the system of equation $2x + 2y = 12$ and $x - y = 4$ using Cramer's rule.
- Simplify $\sqrt[3]{\frac{125x^4y^3}{243xy^2}}$
- Find the value of x from the equation $\log x = 0.5321$
- Simplify the rational expression $\frac{1}{x-3} \cdot \frac{2x+6}{x^2-9}$
- If $x = \sqrt{2} + 3$ find the value of $x + \frac{1}{x}$ and $x^2 + \frac{1}{x^2}$.
- If $x+2$ is a factor of $2x^2+kx+6$ find the value of k .
- Find LCM of the polynomials $x^3 - 4x^2 + 4x$ and $x^3 - 2x^2$.
- Solve the rational equation $\sqrt{2x+5} + 5 = 8$.
- Solve the inequality $\frac{x}{3} + 2 \geq 7$ and plot the solution on number line.
- Prove that the points $A(-3,0)$, $B(3,0)$ and $C(0, 3\sqrt{3})$ are the vertices of an equilateral triangle.
- Prove that, in any correspondence of two triangles, if one side and any two angles of one triangle are congruent to the corresponding side and angles of the other, the two triangles are congruent.
- Prove that in a parallelogram: The opposite sides are congruent, the opposite angles are congruent, the diagonals bisect each other.

SECTION-C

Marks: 24

Note: Attempt any FOUR questions. All questions carry equal marks.

QIII: Prove that, any point on the right bisector of a line segment is equidistant from its end points.

QIV: Prove that if two sides of a triangle are unequal in length, the longer side has an angle of greater measure opposite to it.

QV: Prove that a line parallel to one side of triangle, intersecting the other two sides, divides them proportionally.

QVI: Prove that, in a right angled triangle, the square of the length of hypotenuse is equal to the sum of the squares of the lengths of the other two sides.

QVII: Prove that, parallelogram on the same base and lying between the same parallel lines (or of the same altitude) are equal in area.

QVIII: Construct a quadrilateral PQRS such that $mPQ=4\text{cm}$, $mQR=5\text{cm}$, $m\angle P=105^\circ$, $m\angle Q=75^\circ$, $mPS=6\text{cm}$.

