

MRD-9th
MATHEMATICS Paper-IX (26)

۱۔ ہر سوال کے سامنے چار دائرے دیئے گئے ہیں۔ صرف صحیح جواب والا دائرہ بھر دیں۔

۲۔ دائروں کو شیڈ (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?

1. The determinant of the matrix $\begin{bmatrix} 4 & 5 \\ -3 & -2 \end{bmatrix}$ is.
☐ 3 ☐ -3 ☐ 7 ☐ -7
2. $4x = 4y \Rightarrow x = y$, the property used is.
☐ Cancellation property w.r.t multiplication
☐ Cancellation property w.r.t addition
☐ Multiplicative ☐ Transitive
3. Radial form of the expression $8a^{3/2}$ is.
☐ $2\sqrt[3]{a^2}$ ☐ $4\sqrt{4a^3}$ ☐ $\sqrt[3]{4a^2}$ ☐ $2\sqrt{2a^{3/2}}$
4. Conjugate of the complex number $-\sqrt{a} - bi$ is.
☐ $-\sqrt{a} + bi$ ☐ $\sqrt{a} - bi$ ☐ $\sqrt{a} + bi$ ☐ $-\sqrt{-a} + bi$
5. The order of the matrix $\begin{bmatrix} 1 & 2 & 0 \\ 3 & 5 & 8 \\ 0 & 1 & 2 \\ 4 & 3 & 5 \end{bmatrix}$ is.
☐ 3×3 ☐ 3×4 ☐ 4×3 ☐ 2×4
6. If $\log_x 625 = 4$ then the value of x is.
☐ 10 ☐ 5 ☐ 4 ☐ 3
7. The simplified form of the expression $\frac{5^3 \times 2^5}{20^2}$ is.
☐ 10 ☐ 20 ☐ 40 ☐ 50
8. The property used in the equation $-2 + (3 + 5) = (-2 + 3) + 5$ is.
☐ Associative ☐ Commutative ☐ Distributive ☐ Closure
9. The matrix $\begin{bmatrix} 2 & 3 & 4 \end{bmatrix}$ is an example of a.
☐ Diagonal matrix ☐ Scalar matrix
☐ Row matrix ☐ Column matrix
10. The decimal representation of $\frac{7}{11}$ is.
☐ $0.\overline{62}$ ☐ $0.\overline{63}$ ☐ $0.\overline{64}$ ☐ $0.\overline{65}$

11. The HCF of the algebraic expression $(2x^2 - 16)$ & $\sqrt{2}x - 4$ is.
☐ $2x+4$ ☐ x^2-16 ☐ $\sqrt{2}x-4$ ☐ x^2-4
12. The value of the algebraic expression $\frac{2x^3-10}{\sqrt{x}}$ at $x=4$ is.
☐ 128 ☐ 118 ☐ 64 ☐ 59
13. The point $(-1,2)$ lies on the line having equation.
☐ $y=4x+1$ ☐ $y=x+1$ ☐ $y=x+3$ ☐ $2y=3x+2$
14. One of the factors of the expression $x^2 - 5x + 6$ is.
☐ $x+2$ ☐ $x-3$ ☐ $x+3$ ☐ $x-5$
15. What is the value of x when $x+7=2$.
☐ 5 ☐ -5 ☐ 2 ☐ 7

MRD-9th

MATHEMATICS 9th (Full Course)

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

SECTION-B

Marks: 36

Q2: Attempt any NINE of the following parts. All parts carry equal marks.

- Solve the system of equations $5x+2y=16$ and $3x+4y=18$ using Cramer's Rule.
- Simplify $\frac{\sqrt[3]{243x^9y^{12}}}{\sqrt{81x^4y^2}}$
- Find the value of " x " from the equation $\log x = 2.5421$
- Simplify the rational expression $\frac{1}{2x-6} \cdot \frac{4x+12}{2x^2-18}$
- If $x = \sqrt{10} - 3$ find the value of $x + \frac{1}{x}$ and $x^2 + \frac{1}{x^2}$
- If $x+4$ is a factor of $x^2 + 2x + k$ find the value of k .
- Find the LCM of the polynomials $x^3 - 92 - x + 2$ and $x^3 - x^2 - 2x$
- Solve the radical equation $2\sqrt{2x+3} - 4 = 7$
- Solve the inequality $\frac{x}{2} - 3 \geq \frac{4x+1}{5}$ and plot the solution on number line.
- Prove that, the points $A(-2,1)$, $B(2,5)$ and $C(6,1)$ are the vertices of an isosceles triangle.
- Prove that, if two angles of a triangle are congruent then the sides opposite to them are also congruent.
- Prove that, if two opposite sides of a quadrilateral are congruent and parallel, it is a parallelogram.

SECTION-C

Marks: 24

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

- Q3: Prove that the bisectors of the angles of a triangle are concurrent.
- Q4: Prove that, from a point outside a line, the perpendicular is the shortest distance from the point to the line.
- Q5: 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.
- Q6: 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.
- Q7: Prove that, triangles on the equal bases and of the same altitudes are equal in area.
- Q8: Construct a quadrilateral PQRS such that $m\angle P=40^\circ$, $m\angle Q=60^\circ$, $m\angle S=4.5^\circ$.

