ZIAUDDIN UNIVERSITY
EXAMINATION BOARD

MODEL PAPER, 2023

Subject: Mathematics	Grade – IX	M. Marks:	Time: 3 Hours

SECTION "A"

(MULTIPLE CHOICE QUESTIONS)

Q1. Choose the correct answer for each from the given options. Each question carries one mark. (15)

(i) The additive inverse of $\sqrt{5}$ is:

(a) $-\sqrt{5}$ (b) $1/\sqrt{5}$

(c) $\sqrt{-5}$ (d) -5

(ii) If log x = 4, then the value of x is:

(a) 510 (b) 100

(c) 1000 (d) 10000

(iii) The degree of the equation $3x^2y + 5y^4 - 10$ is:

(a) 4 (b) 5

(c) 6 (d) 10

(iv) The factor of $a^2 + 2a - 24 = 0$ are:

(a) (a + 4) (a - 6) (b) (a - 4) (a + 6)

(c) (a + 3) (a - 8) (d) (a + 8)(a - 3)

(v) The solution set of $\left|\frac{5y}{3}\right| = 5$ is:

(a) {3} (b) {-5, 5}

(c) {3, -3} (d) {-3}

(vi) The point (1, -2) lies in:

(a) 1st quadrant (b) 2nd quadrant

(c) 3rd quadrant (d) 4th quadrant

(vii) A triangle having all 3 sides congruent is called:

(a) Scalene (b) Right angle

(c) Equilateral (d) Isosceles

(viii) $(5 + \sqrt{5})(5 - \sqrt{5})$ is equal to:

(a) 10 (b) 15

(c) 25 (d) 30

(ix) $a^2 + b^2 + c^2 + 2ab + 2ca$ is equal to:

(a) $(a + b - c)^2$ (b) $(a + b + c)^2$

(c) $(a – b + c)^2$ (d) $(a + b + c)^2$

(x) The characteristics of log 54.58 is:

(a) 0 (b) 1

(c) 2 (d) 4

(xi) Logxyz = _____.

(a) Logx logy logz (b) Log x + log y + log z

(c) Log $(xy)^z$ (d) Logx – logy - logz

(xii) (5i) (-2*i*) = _____.

(a) -10 (b) 10

(c) 10*i* (d) -10*i*

(xiii) A (3, 0) and B = (0, 3) are any two points in the plane then $|\overline{AB}|$=

(a) 6 (b) $6\sqrt{2}$

(c) $3\sqrt{2}$ (d) $2\sqrt{3}$

(xiv) The point of intersection of all the three internal trisectors of the angle is called:

(a) Centroid (b) In centre

(c) Ortho centre (d) Circum centre

(xv) How many maximum roots of a quadratic equation are:

(a) 1 (b) 2

(c) 3 (d) 4

SECTION "B"

Note: Answer any six questions from this section. (30)

Q2. If $z_1 = 2-5i$ and $z_2 = 2 + 3i$ verify that $\overline{z_1 . z_2} = \overline{z_1} . \overline{z_2}$.

Q3. Find the value of $a^3 + b^3$, when a + b = 4 and ab = 3. OR $\frac{\sqrt[3]{(125)^2 \, x \, 8}}{\sqrt{(2 \, x \, 32)^2}}$

Q4. Find the value by using logarithms: $\frac{790.6 \, x \, 30.32}{25.753}$.

Q5. Find the factors by using factor theorem $x3 + 5x^2 – 4x – 20$.

Q6. Find the square root of the expression $25x^4 + 40x^3 + 26x^2 + 8x + 1$ by division method.

Q7. Find the solution set of the following equation and also verify the answer.

$$\sqrt{4x + 5} = \sqrt{3x - 7}$$

Q8. Solve the equation by using quadratic formula $x^2 - 2x = 15.3$

Q9. If two angles of a triangle are congruent then the sides opposite to them are also congruent. Prove it.

Q10. If two opposite sides of a quadrilateral are congruent and parallel, it is a parallelogram, prove it.

Q11. Construct ΔPQR such that $m\overline{PQ} = m\overline{QR} = 4.6cm \; and \; m\angle = 35°$.

SECTION "C"

Note: Attempt any three questions from this section.

Q12. Factorize the following (any four)

(i) $36x^4 + 12x^2 + 1$ (ii) $4t^4 + 625$ (iii) $x^6 + 1$

(iv) $16x^2 - 25y^2$ (v) $x^8 + x^4 + 1$ (vi) $x^2 + 13xy - 30y^2$

Q13. Find the solution set of the following simultaneous equations by graphical method.

$$2x = y + 5$$

$$x = 2y + 1$$

Q14. In the correspondence of two right angled triangle, the hypotenuse and one side of one are congruent to the hypotenuse and the corresponding side of the other, then the triangle are congruent, prove it.

Q15. The line segment joining the mid points of two sides of a triangle is parallel to the third side and it is equal to one half of its length, prove it.

Q16. Using distance formula, find the perimeter of the triangle formed by the point A (0, 0), B (4, 0) and C (2, $2\sqrt{3}$).