MS- 7/24

Federal Directorate of Education
Islamabad

Annual Examination-VIII 2024

MATHEMATICS

(Objective)

FDE

Roll No.							

Answer Sheet No. _____

Signature of Candidate: _____

Signature of Invigilator: _____

Time Allowed: 30 Minutes

Note: **This paper consists of THREE Sections. Section – A needs to be solved on the Question Paper. Section – B & C to be solved on the Answer Sheet. Cutting, erasing and overwriting is not allowed.**

SECTION - A (20-Marks)

Q.1. Encircle the correct option. Each question carries one mark.

(i) If $a < b$, then:
(a) $a + b < b + a$ (b) $a + b > b + a$ (c) $a + c < b + c$ (d) $b < a$

(ii) Rounded of value of 19.354 to nearest tenth is:
(a) 19 (b) 19.4 (c) 19.35 (d) 20

(iii) Which of the following is not a perfect square?
(a) 10 (b) 25 (c) 49 (d) 100

(iv) The volume of box is 125 cm^3. The length of side of box is:
(a) 10cm (b) 12cm (c) 25cm (d) 5cm

(v) If marked price of an item is Rs. 444 and sale price is Rs. 410 then discount is:
(a) Rs. 44 (b) Rs. 34 (c) Rs. 54 (d) not possible

(vi) If P = Rs.1000, R = 10%, T = 1 year, then profit is:
(a) Rs.10 (b) Rs.50 (c) Rs.100 (d) Rs.500

(vii) $\{\} - \{a, b, c\}$ is equal to:
(a) $\{a, b, c\}$ (b) $\{0\}$ (c) $\{d, e, f, \ldots, z\}$ (d) $\{\}$

(viii) If $U = \{1, 2, 3, 4, 5\}$ and $A = \{2, 3, 5\}$ then complement of the set A is:
(a) $\{1, 4\}$ (b) $\{6, 7, 8, \ldots\}$ (c) $\{2, 3, 5\}$ (d) $\{1, 3, 5\}$

(ix) The sum of $(7k^2 + 2k - 7)$ and $(3k^2 - 11k - 9)$ is:
(a) $10k^2 + 9k - 16$ (b) $10k^2 - 9k - 16$ (c) $10k^2 - 9k + 16$ (d) $10k^2 + 9k + 16$

(x) Missing terms of the sequence _____, _____, 10, 14, 18,... are:
(a) 3, 6 (b) 2, 7 (c) 2, 6 (d) 1, 5

(xi) $(y - 2x)^2$ is equal to:
(a) $y^2 + 4xy + 4x^2$ (b) $y^2 + 4xy - 4x^2$ (c) $y^2 - 4xy - 4x^2$ (d) $y^2 - 4xy + 4x^2$

(xii) The point (–2, 3) is solution of:
(a) $3x + 2y = 0$ (b) $3x - 2y = 0$ (c) $-3x + 2y = 0$ (d) $2x + 3y = 0$

(xiii) The reflection of (1, 3) across x-axis is:
(a) (–1, –3) (b) (1, –3) (c) (3, 1) (d) (–1, 3)

(xiv) The arc included in a semi-circle is:
(a) central arc (b) minor arc (c) major arc (d) semi-circle

(xv) One angle of a rhombus is 70°. What is the measure of angle at consecutive vertex?
(a) 70° (b) 290° (c) 110° (d) 120°

(xvi) One side and hypotenuse of a right triangle are respectively 12cm and 13cm long. What is the length of third side?
(a) 5cm (b) 6cm (c) 7cm (d) 10cm

(xvii) The area of a sphere is $4\pi r^2$. What is the area of circle having the same radius?
(a) πr^2 (b) $2\pi r^2$ (c) $3\pi r^2$ (d) $4\pi r^2$

(xviii) The difference between small and large value in a data is called:
(a) mean (b) median (c) mode (d) range

(xix) The probability of getting prime numbers in first ten natural numbers is:
(a) $\frac{1}{2}$ (b) $\frac{2}{5}$ (c) $\frac{4}{5}$ (d) $\frac{3}{5}$

(xx) $x^4 \times x^5 \div x^3 =$
(a) x^{11} (b) x^2 (c) x^6 (d) x^4

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(Subjective)

Time Allowed: 02:30 Hour

SECTION - B (32-Marks)

Q.2. Attempt any eight (8) parts from the following. Each part carries equal marks. **(8x4=32)**

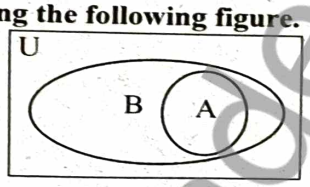
(i) Write $\frac{11}{15}$ in decimal form and check whether it is terminating or non-terminating decimal. (4)

(ii) Estimate the value of $\sqrt{16.4 \times 24.7}$. (4)

(iii) Find square root of $\frac{361}{529}$. (4)

(iv) Find the profit on Rs. 2000 @ 5% for 5 years. (4)

(v) Find $(B - A)^c$ by shading the following figure. (4)



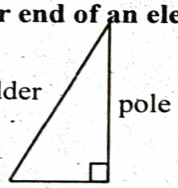
(vi) Find the value of $(89)^2$ using the formula. (4)

(vii) Solve the inequality $20 - 2x < 10$ (4)

(viii) Find the image of the points under a reflection across the given axis.
(a) (3, 2) ; x-axis (b) (–3, 6) ; y-axis (4)

(ix) Find the area of sector of circle if central angle (x) is 150° and radius (r) of circle is 9cm. (4)

(x) A ladder 13m long is placed against the upper end of an electric pole 12m high.



Find the distance between foot of ladder and the pole. (4)

(xi) A marker is randomly selected from a box containing 5 black, 4 blue and 3 red markers. Find the probability that the marker is (a) black (b) red (4)

(xii) Construct a rhombus when its side is 5.5cm and diagonal is 7.4cm long. (4)

SECTION - C (24-Marks)

Q.3. Attempt any THREE (3) questions. Each question carries EIGHT marks. **(3x8=24)**

A rectangular window of a room has sides with lengths of 40m and 50m correct to nearest m. Calculate:

(a) Maximum and minimum possible value of area of window. (4)

(b) Maximum and minimum error while calculating area. (4)

PTO,

Q.4. Amir insured his car worth Rs.685000 at the rate of 3.5% for 2-years. Find the total amount paid as premium, if he did not claim any damage during the period. (8)

Q.5. For the sets: (8)

$X = \{ 0, 3, 6, 9, 12, 15 \}$, $Y = \{ -5, -3, -1, 0, 1, 3, 5 \}$ and $T = \{ 1, 3, 5, 7, 9, 11, 13, 15 \}$

prove that: $XU (Y \cap T) = (XUY) \cap (XUT)$

Q.6. (a) Factorize: $36a^2 - 49b^2$ (4)

(b) Expand and Simplify: $(3s + 4t)^2 + (25 - 3t)^2$ (4)

Q.7. Find graphical solution of system of equations: (8)

$2x + y = 6$

$2x - y = -2$

SECTION - D (24-Marks)

Note: Attempt any THREE (3) questions. Each question carries EIGHT marks. (3x8=24)

Q.8. ΔPQR has vertices P (3,4) , Q (1,1) and R (5,1). Graph the triangle and its image after a 180° clockwise rotation about the origin. (8)

Q.9. If central angle x = 150° and radius r = 21cm, then find:

(a) Arc length. (4)

(b) Area of sector. (4)

Q.10. Construct an isosceles triangle ΔXYZ: (8)

Such that XY = YZ = 5.2cm and XZ = 6cm. Draw right bisector of XZ and Produce it to opposite vertex. Also measure both parts of angles form at vertex Y.

Q.11. A tent is in the form of a cone is 5m high and its base radius is 12m. Find:

(a) The area of canvas (cloth) used to make the tent. (4)

(b) Volume of the tent. (4)

Q.12. Scores of a reading speed test were grouped into the following frequency distribution. (8)

Draw a histogram and frequency polygon on the histogram.

Scores	24 - 27	27 - 30	30 - 33	33 - 36	36 - 39	39 – 42
Frequency	3	17	20	30	13	11

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