

MATHEMATICS (10th)
SSC-10th-Swat-2026

Time: 20 Minutes **Marks: 15**

Multiple Choice Questions
01 Mark for each

Paper Code

- ☐ A
☒ B
☐ C

Roll No. of the Student

Serial No. Of the Answer Book _____

SECTION-A

Note:

- 1) Attempting all MCQs is compulsory. This paper along with the OMR sheet must be returned to the superintendent after due time.
- 2) Fill the circle (A) (B) (C) (D), which one is correct with blue or black ball point in separate OMR Sheet like ☒
- 3) If more than one circle in the OMR sheet is filled then no credit will be given to such answer.

- I. i. If $A = Q$ & $B = Z$ then $A \cap B$ is equal to

☐ A Empty set ☒ B Set of Natural Number ☐ C Set of Rational Numbers ☐ D Sets of Irrational Numbers
- ii. If two ordered pairs $(3x, x + y)$ & $(2, 4)$ are equal, then the value of y is:

☐ A 2 ☐ B 3 ☐ C $\frac{2}{3}$ ☒ D $\frac{10}{3}$
- iii. If $A = \{2, 3\}$ & $B = \{d, e\}$ then the number of elements in $A \times B$ are:

☒ A 4 ☐ B 6 ☐ C 16 ☐ D 32
- iv. The process of dividing the range on the number of groups is used to find:

☐ A Tally marks ☒ B Width ☐ C Class limits ☐ D Class Boundaries
- v. In a histogram, the area of each rectangle is proportional to the:

☒ A Frequencies ☐ B Class marks ☒ C Class intervals ☐ D Cumulative Frequency
- vi. The measure of the radians in half rotation is:

☒ A π ☒ B 2π ☐ C $\frac{\pi}{2}$ ☐ D $\frac{3\pi}{2}$
- vii. If $\pi < \theta < \frac{3\pi}{2}$, then θ lies in.

☐ A 1st quadrant ☐ B 2nd quadrant ☒ C 3rd quadrant ☐ D 4th quadrant
- viii. In a circle, if two chord PQ & RS are equidistance from the center, then:

☐ A $PQ < RS$ ☒ B $PQ = RS$ ☐ C $PQ > RS$ ☐ D PQ & RS are perpendicular
- ix. The equation $2k^3 + 3x + 4x^2 = 0$ is:

☐ A Linear Equation ☐ B Quadratic Equation ☒ C Cubic Equation ☐ D Quartic Equation
- x. $x = 1$ or $x = 2$ are the roots of the quadratic equation.

☐ A $x^2 - 6x + 5 = 0$ ☐ B $x^2 + 3x + 4 = 0$ ☐ C $x^2 + 5x + 4 = 0$ ☒ D $2x^2 - 6x + 4 = 0$
- xi. The discriminant of the quadratic equation $3x^2 - 5x + 2 = 0$.

☐ A 0 ☒ B 1 ☐ C -1 ☐ D 5
- xii. The product of the roots of the quadratic equation $6x^2 + 5x + 12 = 0$ is:

☒ A 2 ☐ B 3 ☐ C -4 ☐ D 8
- xiii. In the equation $y = kx$, k represent:

☐ A The variable ☐ B The dependent variable ☐ C The independent variable ☒ D The constant of variation
- xiv. The mean proportion of 8 and 2 is:

☒ A 4 ☐ B 6 ☐ C 8 ☐ D 16
- xv. A rational fraction $\frac{2x^2+5}{x^3+1}$ is:

☒ A Proper fraction ☐ B Improper fraction ☐ C Mixed fraction ☐ D Undefined

Note: Time allowed for section B and C is 2 hours and 40 minutes.

SECTION "B"

Marks: 36

II. Attempt any NINE Parts out of the following. Each Part carries equal marks.

- i. Solve $4x^2 - 6.2x + 8 = 0$ using quadratic formula.
- ii. Solve the equation $\sqrt{4x+3} = 2x+5$.
- iii. Find the quadratic equation whose roots are $\frac{3}{4}$ and $-\frac{2}{3}$.
- iv. Find the value of k so that the sum of the roots of the quadratic equation $x^2 + (k-1)x + (k+2) = 0$ is equal to three times the product of its roots.
- v. Solve the equation $\frac{\sqrt{3x+4} + \sqrt{x-2}}{\sqrt{3x+4} - \sqrt{x-2}} = \frac{5}{3}$.
- vi. Resolve $\frac{x+7}{(x+5)(x-2)}$ into partial fractions.
- vii. If $X = \{1, 2, 3, 4\}$ & $Y = \{a, b, c\}$, then write
 - i. a one-one function from X to Y if possible.
 - ii. onto function from Y to X .
- viii. Find the variance of the data:
5, 8, 11, 14, 17
- ix. Find the area of sector of a circle whose radius is 9m, with central angle 70° .
- x. Prove that $\cos x \cdot \cot x + \sin x = \operatorname{cosec} x$.
- xi. If two circles with radii $3x$ cm and $6x$ cm respectively touches each other externally, find the value of x if the distance between their centers is 18 cm.
- xii. In a circle, arcs PQ and RS subtend equal angles at the center. If the length of chord PQ = $x + 3$ cm and the length of chord RS = $2x - 4$ cm, find the value of x .

SECTION "C"

Marks: 24

Note: Attempt any THREE questions of the following. Each question carries equal Marks.

- III. Using Apollonius' theorem, find the length of the medians of the triangle, having length of their sides are AB = 6cm, BC = 8cm, and AC = 10cm.
- IV. Prove that Perpendicular from the center of a circle on a chord bisect it.
- V. Prove that any two angles in the same segment of a circle are equal.
- VI. Construct a triangle ABC with sides 6cm, 7cm, and 8cm and inscribe a circle in it.