

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. There are _____ types of grouped data.

- (A) 1 (B) 2 (C) 3 (D) 4

ii. The range of the data 209,260,270,311 and 311 is _____.

- (A) 270 (B) 311 (C) 272.2 (D) 102

iii. In a circle, Two chords are equally distance from the centre of a circle the chord are _____.

- (A) Parallel (B) Congruent (C) Non congruent (D) Non Parallel

iv. Any two angles in the same segment of a circle are _____.

- (A) Equall (B) Non equall (C) Non congruent (D) None of these

v. Pathagoras was _____ Mathematician.

- (A) German (B) Greek (C) British (D) French.

vi. If $x \propto \frac{1}{y}$ and $y \propto \frac{1}{z}$ then _____.

- (A) $y \propto \frac{1}{z}$ (B) $x \propto z$ (C) $xy \propto z$ (D) $xz \propto y$

vii. Co-Terminal angles of 60° are _____.

- (A) -420° and -420° (B) 300° and -300° (C) 420° and -300° (D) None of these

viii. If α, β be the roots of $9x^2 - 27x + c = 0$ then $\alpha + \beta =$ _____.

- (A) 3 (B) $\frac{1}{3}$ (C) -3 (D) $-\frac{1}{3}$

ix. If $A = \{1, 2, 3\}$, $B = [4, 5]$ and $R = (1, 4), (2, 5), (3, 4)$ then R is _____.

- (A) Into function from A to B (B) Not a function (C) An onto function from A to B (D) None of these

x. If P(x) and Q(x) are two Polynomial then $\frac{P(x)}{Q(x)}, Q(x) \neq 0$ is _____ fraction.

- (A) Rational (B) Irrational (C) Proper (D) Improper

xi. Direct variation between a and b is expressed as _____.

- (A) $a = b$ (B) $a \propto b$ (C) $a = \frac{1}{b}$ (D) $a \propto \frac{1}{b}$

xii. The quadratic formula is $x =$ _____.

- (A) $\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ (B) $\frac{b \pm \sqrt{b^2 - 4ac}}{2a}$ (C) $\frac{b + \sqrt{b^2 - 4ac}}{2a}$ (D) $\frac{-b - \sqrt{b^2 - 4ac}}{2a}$

xiii. $2^x = 2$ than $x =$ _____.

- (A) -1 (B) 1 (C) 2 (D) 0

xiv. $W^{24} =$ _____.

- (A) W (B) W^2 (C) 1 (D) -1

xv. If $x^2 - x - 1 = 0$ Then $x =$ _____.

- (A) $\frac{-1 \pm \sqrt{5}}{2}$ (B) $\frac{+1 \pm \sqrt{5}}{2}$ (C) $\frac{-1 + \sqrt{5}}{2}$ (D) $\frac{-1 - \sqrt{5}}{2}$

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 $(x + \frac{1}{x})^2 - 10(x + \frac{1}{x}) + 16 = 0$.
- ii. If $x+1$ and $x-2$ are factor of the polynomial $x^3 + ax^2 + bx + 2$, Then using synthetic division find the value of a and b .
- iii. The area of a rectangle field is 252 square meter. The length of its side is 9 meter longer than its width. Find its Sides.
- iv. If $5:15:x$ are in continued proportion. Find the value of x .
- v. If 8 persons complete a work in 10days. Then how many days would 10 persons take to complete the same work.
- vi. Find partial fraction of $\frac{x}{(x+1)^2}$.
- vii. If $A = \{1, 2, 3, 4, 5\}$, $B = \{2, 3, 6, 9\}$ Then draw venn diagram for $A \cup B$ and $A \cap B$.
- viii. Find x and y given $(2x, x+y) = (6, 2)$.
- ix. Find A.M of the values. 2, 3, 4, 5, 6, 7, 8, 9, 10 by short cut method.
- x. Find the median of the following data. 64, 65, 65, 66, 66, 67.
- xi. Convert 32.625° to $D^\circ M' S''$ form.
- xii. Prove that $\sin x \tan x + \cos x = \sec x$.

SECTION "C"

Marks: 24

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

- III. If two circles touch internally, the distance between their centres is the difference of their radii.
- IV. Perpendicular from the centre of a circle on a chord bisect it.
- V. The internal bisector of a central angle in a circle bisect an arc on which it stands.
- VI. Construct a triangle ABC with sides $m\overline{AB} = 5\text{cm}$, $m\overline{BC} = 6\text{cm}$ and $m\overline{CA} = 8\text{cm}$ draw perpendicular bisectors of its sides and then circumscribe a circle.