

Sargodha Board 2018 (Second Group)

Roll No.(in Figures): (in Words):

Maximum Marks: 60 **SUBJECTIVE TYPE (PART - I)** Time Allowed :2.10 Hours

Q2. Write short answers to any SIX (6) questions: (6×2=12)

- (i) Define column matrix with example.
- (ii) Find whether the matrix $\begin{bmatrix} 7 & -9 \\ 3 & 5 \end{bmatrix}$ is singular or non singular.
- (iii) Simplify: $5^{2^3} \div (5^2)^3$ (iv) Simplify: $\left(\frac{x^3y^4z^5}{x^{-2}y^{-1}z^{-5}}\right)^{1/5}$ (v) Find the value of x . $\log_{64} 8 = \frac{x}{2}$
- (vi) If $\log 2 = 0.3010$, $\log 3 = 0.4771$, $\log 5 = 0.6990$ find the value of $\log 30$.
- (vii) Evaluate $\frac{x^3y - 2z}{xz}$ for $x = 3$, $y = -1$, $z = -2$ (viii) If $x - \frac{1}{x} = 2$ find $x^4 + \frac{1}{x^4}$.
- (ix) Factorize: $3x^2 - 75y^2$

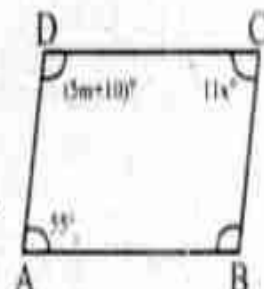
Q3. Write short answers to any SIX (6) questions: (6×2=12)

- (i) Find L.C.M. by factorization. $x^2 - 25x + 100$, $x^2 - x - 20$
- (ii) Solve equation and check for extraneous solution. $\sqrt{3x+4} = 2$
- (iii) Find solution set: $\frac{1}{2}|3x+2| - 4 = 11$ (iv) Define Cartesian plane.
- (v) Find values of m and c after expressing line in the form $y = mx + c$, $3x + y - 1 = 0$
- (vi) Find the distance between the pair of points. $A(-8, 1)$, $B(6, 1)$
- (vii) Find mid point of the line segment joining pair of points. $A(0, 0)$, $B(0, -5)$

(viii) Find x° .

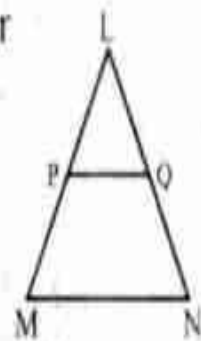


(ix) Find x° and m° in the figure.

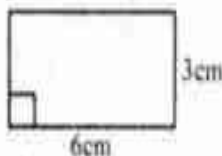


Q4. Write short answers to any SIX (6) questions: (6×2=12)

- (i) Define right bisector of a line segment.
- (ii) Whether 3cm, 4cm and 5cm can be lengths of the sides of a triangle? Give reason
- (iii) Define similar triangles.
- (iv) In $\triangle LMN$, $\overline{MN} \parallel \overline{PQ}$ if $m\overline{LM} = 6\text{cm}$, $m\overline{LQ} = 2.5\text{cm}$ and $m\overline{QN} = 5\text{cm}$, then find $m\overline{LP}$.
- (v) State Pythagoras theorem.
- (vi) Verify that $a = 5\text{cm}$, $b = 12\text{cm}$, $c = 13\text{cm}$ are lengths of right angled triangle.



(vii) Find area.



(viii) Define the orthocenter of the triangle.

(ix) Construct a $\triangle ABC$ in which $m\overline{AB} = 3.2\text{cm}$, $m\overline{BC} = 4.2\text{cm}$, $m\overline{CA} = 5.2\text{cm}$.

PART - II

Note: Attempt any THREE questions in all. But question No.9 is Compulsory. (3 × 8 = 24)

Q5. (a) Solve by using matrix inversion method. $2x + y = 3$, $6x + 5y = 1$ 4

(b) Simplify: $\sqrt[3]{\frac{a^r}{a^m}} \times \sqrt[3]{\frac{a^m}{a^n}} \times \sqrt[3]{\frac{a^n}{a^r}}$ 4

Q6. (a) Use log table to find the value of $\sqrt[5]{2.709} \times \sqrt[7]{1.239}$ 4

(b) Find the value of $x + y + z$ if, $x^2 + y^2 + z^2 = 78$ and $xy + yz + zx = 59$. 4

Q7. (a) If $(x + 2)$ is a factor of $3x^2 - 4kx - 4k^2$, then find the value(s) of k . 4

(b) Find square root using division method of $9x^4 - 6x^3 + 7x^2 - 2x + 1$. 4

Q8. (a) Find the solution set of the equation. $x + \frac{1}{3} = 2\left(x - \frac{2}{3}\right) - 6x$ 4

(b) Construct the $\triangle PQR$ and draw its altitude. $m\overline{PQ} = 6\text{cm}$, $m\overline{QR} = 4.5\text{cm}$ and $m\overline{PR} = 5.5\text{cm}$ 4

Q9. Prove that: the bisectors of the angles of a triangle are concurrent. 8

(OR) Prove that: Triangles on equal bases and of equal altitudes are equal in area.