

**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:  $\left(\frac{x^3 y^4 z^5}{x^{-2} y^{-1} z^{-5}}\right)^{1/5}$       (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  $\frac{x^3 y - 2z}{xz}$  for  $x = 3$ ,  $y = -1$ ,  $z = -2$       (viii) If  $x - \frac{1}{x} = 2$  find  $x^4 + \frac{1}{x^4}$ .
- (ix) Factorize:  $3x^2 - 75y^2$

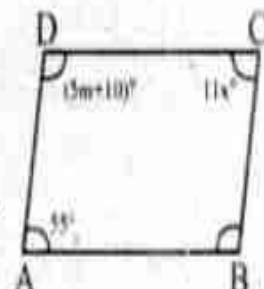
**Q3. Write short answers to any SIX (6) questions: (6×2=12)**

- (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  $x^\circ$ .

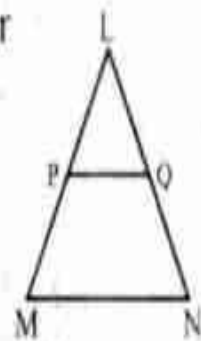


(ix) Find  $x^\circ$  and  $m^\circ$  in the figure.

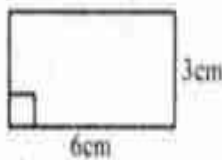


**Q4. Write short answers to any SIX (6) questions: (6×2=12)**

- (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.