

<b>Math (Science)</b>	<b>9th...2018 Gujranwala Board</b>	<b>Paper I (Essay Type)</b>
<b>Time: 1:45 Hours</b>	<b>(Group-I) Section-I</b>	<b>Max Marks: 48</b>

**2. Write short answers to any SIX (6) questions. 12**

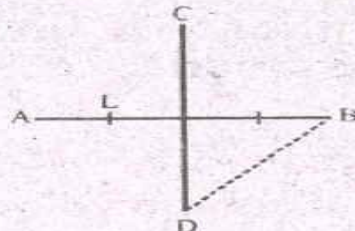
- (i) Define scalar matrix with example.
- (ii) Find the multiplicative inverse of the matrix (if possible),  $A = \begin{bmatrix} -1 & 3 \\ 2 & 0 \end{bmatrix}$
- (iii) Simply:  $\left(\frac{8}{125}\right)^{\frac{4}{3}}$
- (iv) Find the value of  $x$  and  $y$  if  $x + iy + 1 = 4 - 3i$ .
- (v) Write in scientific notation 0.0074.
- (vi) Write in the form of single logarithm  $2 \log x - 3 \log y$ .
- (vii) Define surds with example.
- (viii) Simplify:  $\sqrt{14} \times \sqrt{35}$
- (ix) Factorize:  $8x^3 - \frac{1}{27}y^3$

**3. Write short answers to any SIX (6) questions. 12**

- (i) Simplify:  $\frac{a+b}{a^2-b^2} \div \frac{a^2-ab}{a^2-2ab+b^2}$
- (ii) Solve for  $x$   $|3x+14|-2=5x$
- (iii) Solve  $9-7x > 19-2x$ , where  $x \in R$
- (iv) Define collinear points.
- (v) Define origin.
- (vi) Find distance between  $(0,0)$  and  $(0,-5)$
- (vii) Find the mid-point of the line segment joining the points  $A(2, 5)$  and  $B(-1, 1)$
- (viii) Define S.S.S. postulate
- (ix) One exterior angle formed on producing one side of a parallelogram is  $40^\circ$ . Find the measures of its interior angles.

**4. Write short answers to any SIX (6) questions. 12**

- (i) In the given figure  $CD$  is the right bisector of the line segment  $AB$  if  $m\angle A = 60^\circ$ , then find  $m\angle C$  and  $m\angle B$ .

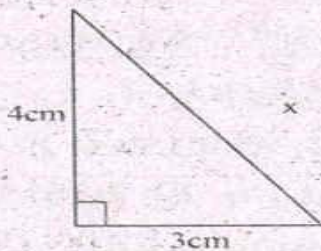


- (ii) 3cm, 4cm and 7cm are not the lengths of the triangle.

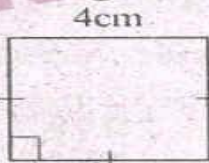


Give the reason.

- (iii) Define similar triangles.  
(iv) State converse of pythagoras theorem.  
(v) Find  $x$  in the given figure.



- (vi) Define altitude of a triangle.  
(vii) Find area of the given figure.



- (viii) Construct triangle ABC in which  $mAB = 3.2\text{cm}$ ,  $mBC = 4.2\text{cm}$ ,  $mCA = 5.2\text{cm}$ .  
(ix) Define circumcentre of a triangle.

### PART-II

5. (a) Solve the given equations by matrix inversion method:

$$2x + y = 3$$

$$6x + 5y = 1$$

(4)

- (b) Use laws of exponents to simplify:

$$\frac{(81)^n \times (3)^5 - (3)^{4n-1} (243)}{(9^{2n})(3^3)}$$

(4)

6. (a) Use log table to find the value of  $\frac{0.678 \times 9.01}{0.0234}$  (4)

- (b) If  $a^2 + b^2 + c^2 = 45$  and  $a + b + c = -1$ , then find the value of  $ab + bc + ca$ . (4)

7. (a) Factorize:  $(x^2 + 5x + 4)(x^2 + 5x + 6) - 3$  (4)

- (b) Use division method to find the square root of the expression:  $(9x^4 - 6x^3 + 7x^2 - 2x + 1)$  (4)

8. (a) Find the solution set of the equation:  $\frac{2}{3}x - \frac{1}{2}x = x + \frac{1}{6}$

- (b) Construct the following triangle ABC. Draw the bisectors of their angles: (4)

$$mAB = 4.2\text{cm}, mBC = 6\text{cm} \text{ and } mCA = 5.2\text{cm}$$

9. Prove that any point on the bisector of a line segment is equidistant from its end points. (8)

OR

Prove that parallelograms on the same base and between the same parallel lines are equal in area.