MM 30 | Chapter 6 Triangles | Time 1h

SECTION A 1 Mark each

Q1. If two triangles are similar then their corresponding angles are ____________.

Q2. In ΔABC, DE ∥ BC intersecting AB at D and AC at E, AD = 1cm, DB = 3cm, AE = 1.5cm, EC =?

Q3. In ΔABC, D is a point on AB and E is a point on AC, DE is joined. AD = 2, DB = 3, AE = 3 cm, EC = 4.5. Is DE ∥ BC?

Q4. State Pythagoras theorem

Q5. ABC is an isosceles triangle in which $AC^2 = 2\ AB^2$ Prove the triangle is right.

SECTION B 2 Marks each

Q6. Prove converse of mid-point theorem using basic proportionality theorem

Q7. In the ΔABC, ∠ACB = 90° and CD ⊥ AB, D lies on AB. Prove that $CD^2 = BD \times AD$

SECTION C 3 Marks each

Q8. Δ ABC and Δ DBC are on the same base BC and opposite side of it. If AD and BC intersect at O, prove that $\frac{area(\Delta ABC)}{area(\Delta DBC)} = \frac{AO}{DO}$

Q9. O is any point inside a rectangle ABCD. Prove that $OB^2 + OD^2 = OA^2 + OC^2$.

Q10. D, E, F, are the mid-points of the sides AB, CA and BC respectively of a ΔABC. Using Area theorem of similar triangles, find the ratio of areas of triangles DEF and ABC.

SECTION D 6 Marks each

Q11. Prove that the ratio of the areas of two similar triangles is equal to the ratio of the squares of their corresponding sides. Apply the above theorem on the following: ABC is a triangle and PQ is a straight line meeting AB in P and AC in Q. If AP = 1 cm, PB = 3cm, AQ = 1.5 cm, QC = 4.5 cm, Prove that the area of Δ APQ is one-sixteenth of the area of ΔABC.

Q12. Prove that in a triangle, a line drawn parallel to one side to intersect the other two sides in distinct points, divides the two sides in the same ratio. Using above, prove that the Quadrilateral ABCD is a trapezium if the diagonals AC and BD of the quadrilateral ABCD intersect each other at O such that $\frac{AO}{OC} = \frac{BO}{OD}$