

**M.M. 25**

**Areas of Parallelograms and Triangles**

**Time 1 hour**

**Section A 1 mark each**

- Q1. In parallelogram ABCD  $AP \perp CD$  and  $AQ \perp BC$ . If  $AB = 30\text{cm}$ ,  $AP = 8\text{cm}$ ,  $AQ = 12\text{cm}$  find AD
- Q2. Show triangles on same base and between same parallel lines are equal in area
- Q3. A diagonal divides a parallelogram into \_\_\_\_\_ area.

**Section B 2 marks each**

- Q4. A median divides a triangle into 2 triangles equal in area. Prove
- Q5. Prove area of a quadrilateral is equal to half the product of the diagonal and the sum of perpendiculars from the opposite vertices on this diagonals.

**Section C 3 marks each**

- Q6. In  $\Delta ABC$ , E is a point on median AD such that  $AE : ED = 2:1$ . Show area of  $\Delta BED = \frac{1}{6}$  area of  $\Delta ABC$
- Q7. ABCD is a quadrilateral, BD and AC intersect at O.  
Prove  $\text{ar}(\Delta AOD) \times \text{ar}(\Delta BOC) = \text{ar}(\Delta AOB) \times \text{ar}(\Delta COD)$

**Section D 6 marks each**

- Q8. Show parallelograms on same base and between same parallel lines are equal in area
- Q9. D, E, F are mid points of sides BC, AD and AB respectively of  $\Delta ABC$ . Prove area of parallelogram BDEF is equal to half area of  $\Delta ABC$

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