Home Revise

STD : 12^{th} SCIENCE	**TOPIC :** 3,5	**MARKS :** 30
SUBJECT : MATHS 1		**DATE :**

Section A

MCQ **(02)**

1. If L and M are the mid-points of sides BC and CD of parallelogram ABCD, then $\overline{AL} + \overline{AM} =$

   (A) $\frac{1}{2}\overline{AC}$ (B) $\frac{3}{2}\overline{AC}$ (C) $\overline{AC}$ (D) $\frac{2}{3}\overline{AC}\,.\overline{BD}$

2 In $\triangle$ABC, if a=2, $\angle$B=60^0 and $\angle$C=75^0 then b=

   (A) $\sqrt{3}$ (B) $\sqrt{6}$ (C) $\sqrt{9}$ (d) $1+\sqrt{2}$

Section B

Solve the following. **(08)**

3. Find the principal solutions of cot x = $\sqrt{3}$

4. In ΔABC prove that a(b cosC – c cos B) = $b^2 - c^2$

5. If the vectors $-3\hat{\imath}+4\hat{\jmath}-2\hat{k}, \hat{\imath}+2\hat{k}, \hat{\imath}-p\hat{\jmath}$ are coplanar, then find value of p.

6. If $\bar{a}, \bar{b}, \bar{c}$ are the position vectors of the points A, B, C respectively and $5\bar{a}-3\bar{b}-2\bar{c}=0$, then find the ratio in which C divides the line segment BA.

OR

Find the volume of tetrahedron whose coterminous edges are $7\hat{\imath}+\hat{k}$, $2\hat{\imath}+5\hat{\jmath}-3\hat{k}$ and $4\hat{\imath}+3\hat{\jmath}+\hat{k}$.

Section C

Solve the following. **(12)**

7. Find the general solution of $\sec^2 2x = 1 - \tan 2x$

8. With usual notations prove that $2\left\{a.\sin^2\frac{C}{2}+ c\,.\sin^2\frac{A}{2}\right\} = a + c - b$

OR

In ΔABC, if $\sin^2$A + $\sin^2$B = $\sin^2$C, then show that the triangle is a right angled triangle.

9. If $\bar{a} = \hat{\imath}+5\hat{k}, \bar{b} = 2\hat{\imath}+3\hat{k}, \bar{c} = 4\hat{\imath}-\hat{\jmath}+2\hat{k}$ and $\bar{d} = \hat{\imath}-\hat{\jmath}$, find $(\bar{c}-\bar{a})\cdot(\bar{b}\times\bar{d})$.

10. Express $-\hat{\imath}-3\hat{\jmath}+4\hat{k}$ as a linear combination of the vectors $2\hat{\imath}+\hat{\jmath}-4\hat{k}$, $2\hat{\imath}-\hat{\jmath}+3\hat{k}$ and $3\hat{\imath}+\hat{\jmath}-2\hat{k}$.

Section D

Solve the following. **(08)**

11. In any ΔABC prove that $b^2 = a^2+c^2 - 2ac$ COSB

OR

11. $\cos^{-1}\frac{12}{13}+\sin^{-1}\frac{3}{5}=\sin^{-1}\frac{56}{65}$

12. If A, B, C, D are four non-collinear points in a plane such that $\overline{AD}+\overline{BD}+\overline{CD}=\bar{0}$, then prove that point D is the centroid of the ΔABC.

OR

12 By vector method prove that the medians of a triangle are concurrent.