ADITYA DEGREE COLLEGES - RAJAHMUNDRY

Ist Year MID-I
Analytical Solid Geometry

Time:2 hrs.   Marks:60

SECTION-A   **5 x 4 = 20 M**

I. Answer any FIVE Questions:

1. Find the equation of the plane passing through the points (1,2,1) (1,1,0) (-2, 2, -1)

2. Find the angle between the planes x+2y+3z=5 3x+3y+z=9.

3. Show that the line $\frac{x+1}{-1}=\frac{y+2}{3}=\frac{Z+5}{5}$ lies in the plane x+2y-z=0.

4. Find the image of the point (2, -1, 3) in the plane 3x-2y+z=9.

5. Prove that the equation of the plane through the points (1, -2, 4) and (3, -4,5) and parallel to x-axis is y+ 2z=6.

6. Find the equation of the line through the point (1,2,4) and parallel to the line 3x+2y-z=4, x-2y-2z=5.

7. Find the value of 'K'

$$\frac{x+1}{-3}=\frac{y+2}{2k}=\frac{z-3}{2}, \frac{x-1}{3k}=\frac{y+5}{1}=\frac{z+6}{7}$$ are perpendicular.

8. Prove that the distance between parallel planes.

2x-2y+z+3=0, 4x-4y+2z+5=0 is 1/6.

SECTION-B

II. Answer ALL Questions: **4 x 10 = 40 M**

9 (a) A variable plane is at a constant distance ' p' from the origin and meets the axes in A,B,C show that the centroid of the tetrahedron 0 ABC is $x^{-2}+ y^{-2}+ z^{-2}= 16 P^{-2}$

(or)

(b)Find the equation of the bisectors of the angle between the planes 3x-2y+6z+2=0 and 2x- y+2z+2=0.

10. (a) Find the equation of the plane through the lines of Intersection of the planes.

X+y+z-6=0 and 2x+3y+4Z+5=0 through the point (1,1,1).

(or)

(b) Find the equation of the plane passing through the Intersection of the planes x+3y+6=0 and 3x-y-4z=0 such that the perpendicular distance of each from the origin is unity.

11(a) Show that the lines $\frac{x-1}{2}=\frac{y+1}{-3}=\frac{z+10}{8}$, $\frac{x-4}{1}=\frac{y+3}{-4}=\frac{Z+1}{7}$ coplanar. Also find their point of Intersection and the plane containing the lines.

(or)

(b)Find the image of the line $\frac{x-1}{9}=\frac{y-2}{-1}=\frac{Z+3}{-3}$ in the plane 3x-3y+10Z-26=0.

12. (a) Find the shortest distance between the lines $\frac{x-3}{3}=\frac{y-8}{-1}=\frac{Z-3}{1}, \frac{x+3}{-3}=\frac{y+7}{24}=\frac{Z-6}{4}$.

Find also the equation and the points in which the S.D meets the given lines.

(or)

(b) Find the equation of the plane containing the line 2x-5y+2z-6=0 = 2x+3y-z-5 and parallel to the line x= $\frac{-y}{6}=\frac{z}{7}$.