INDIAN SCHOOL NIZWA - WORKSHEET

MATHEMATICS
CH-11- 3D GEOMETRY

Name: _____ Date:_____ Class: XII Sec: ___

1.A line passes through (2,-1,3) and is perpendicular to the lines $\mathbf{r} = (i+j-k) + \lambda(2i-2j+k)$ and $\mathbf{r} = (2i-j-3k)+\mu(i+2j+2k)$. Obtain its equation in vector and Cartesian form.

2.Find the point on the line $\frac{x+2}{3} = \frac{y+1}{2} = \frac{z-3}{2}$ at a distance $3\sqrt{2}$ from the point (1,2,3)

3.Find the equation of the line which passes through the point (1,-3,0) and parallel to the planes $\mathbf{r}.(1+2j)$ and $3y-z = 5$.

4.If points (1,1,p) and (-3,0,1) be equidistant from the plane $\mathbf{r}.(3i+4j-12k) + 13 = 0$, then find the value of p.

5.Find the distance of the point (2,3,4) from the plane $3x+2y+2z+5 = 0$ measured parallel to the line $\frac{x+3}{3} = \frac{y-2}{6} = \frac{z}{2}$

6.Find the equation of the plane passing through the point (2,2,-1) and containing the line $\mathbf{r}=(3i+4j+2k) + \lambda(7i+6k)$.

7.Find the vector equation of the plane passing through three points with position vectors i+j-2k, 2i-j+k and i+2j+k. Also find the coordinates of the point of intersection of this plane and the line $\mathbf{r}=3i-j-k + \lambda(2i-2j+k)$.

8.Find the equation of the plane which passes through the line of intersection of the planes $x+y+z = 1$ and $2x + 3y + 4z = 5$ and parallel to x- axis.

9.Find the image of the line $\frac{x-1}{0} = \frac{y-3}{1} = \frac{z-4}{7}$ in the plane $2x - y + z + 3 = 0$.

10.Find the equation of the line passing through the point (4,6,2) and the point of intersection of the line $\frac{x-1}{3} = \frac{y}{2} = \frac{z+1}{7}$ and the plane $x+y-z = 8$.

11.Find the equation of the perpendicular drawn from the point (1,-2,3) to the plane $2x - 3y + 4z + 9 = 0$. Also find the coordinates of the foot of the perpendicular.

12.Find the coordinates of the foot of the perpendicular and the length of perpendicular drawn from the point P(5,4,2) to the line $r = -i+3j+k + \lambda(2i+3j-k)$. Also find the image of P in this line.