WS- STANDARD

Class XII

CH- XI-The Plane

1. The plane $2x - 3y + 6z - 11 = 0$ makes an angle $\sin^{-1}\alpha$ with X-axis ,The value of α is equal to

   (a) $\frac{\sqrt{3}}{2}$
   (b) $\frac{\sqrt{2}}{3}$
   (c) $\frac{2}{7}$
   (d) $\frac{3\sqrt{5}}{7}$

2. The equation of the line in vector form passing through the point $(-1, 3, 5)$ and parallel to line $\frac{x-3}{2} = \frac{y-4}{3} = \frac{z-2}{5}$ is

   (a) $\vec{r} = (-\hat{\imath} + 3\hat{\jmath} + 5\hat{k}) + \lambda (2\hat{\imath} + 3\hat{\jmath} + 5\hat{k})$
   (b) $\vec{r} = (-\hat{\imath} + 3\hat{\jmath} + 5\hat{k}) + \lambda (2\hat{\imath} + 3\hat{\jmath})$
   (c) $\vec{r} = (2\hat{\imath} + 3\hat{\jmath} - 2\hat{k}) + \lambda (-\hat{\imath} + 3\hat{\jmath} + 5\hat{k})$
   (d) $\vec{r} = (2\hat{\imath} + 3\hat{\jmath}) + \lambda (-\hat{\imath} + 3\hat{\jmath} + 5\hat{k})$

3. The distance of the plane $\vec{r} \cdot \left(\frac{2}{7}\hat{\imath} + \frac{3}{7}\hat{\jmath} - \frac{6}{7}\hat{k} \right) = 1$ from the origin is

   (a) 1
   (b) 7
   (c) $\frac{1}{7}$
   (d) none of these

4. A plane meets the co-ordinate axes at A,B and C such that centroid of ΔABC is the point (a,b,c) . If the equation of the plane is $\frac{x}{a} + \frac{y}{b} + \frac{z}{c} = k$, then k is

   (a) 1
   (b) 2
   (c)3
   (d)none

5. If the plane 2x-y+z=0 is parallel to the line $\frac{2x-1}{2} = \frac{2-y}{2} = \frac{z+1}{a}$, then the value of 'a' is

   (a)4
   (b)-4
   (c)2
   (d)-2

6. The line $\frac{x-4}{1} = \frac{y-2}{1} = \frac{z-k}{2}$ lies exactly on the plane 2x-4y+z=7 , then the value of 'k' is_____ .

7. The equation of the plane containing the line $\frac{x+1}{-3} = \frac{y-3}{2} = \frac{z+2}{1}$ and the point (0,7, -7) is _____ .

8. The image of the point (-1,3,4) in the plane x-2y=0 is _____ .

9. The angle between the the line $\vec{r} = \hat{\imath} + 2\hat{\jmath} - \hat{k} + \mu(2\hat{\imath} + \hat{\jmath} + 2\hat{k})$ and the plane 3x-2y+6z=0 is_____ .

10. The co-ordinates of a point on the line $\frac{x-1}{2} = \frac{y-2}{1} = \frac{z+3}{2}$ at a distance 3 from the point (1,2,-3) are _____ .

11. The reflection of the point A(1,0,0) in the line $\frac{x-1}{2} = \frac{y+1}{-3} = \frac{z+10}{8}$ is__ .

12. The sine of the angle between the straight line $\frac{x-2}{3} = \frac{y-3}{4} = \frac{z-4}{5}$ and the plane 2x-2y+z=5 is _____ .

13. Find the equation to the plane through the point (2,3,1) and (4,-5,3) and parallel to x-axis.

14. Find the equation of plane perpendicular to the line $\frac{x-1}{2} = \frac{y-3}{-1} = \frac{z-4}{2}$ and passing through origin .

15. Find the equation the plane passing through the points (2,2,1) and (9,3,6) an d perpendicular to the plane 2x+6y+6z-1=0 .

16. Find the equation of plane passing through the points (2,1,-1),(1,1,1) and (3,3,0).

17. Find the equation of the plane through the point (-1,2,0) and parallel to the lines $\frac{x}{3} = \frac{y+1}{0} = \frac{z-2}{-1}$ and $\frac{x-1}{1} = \frac{2y+1}{2} = \frac{z+1}{-1}$.

18. Find the equation of the plane passing through the intersection of the planes x+2y+3z+4=0 and 4x+3y+2z+1=0 and origin.

19. Find the equation of plane passing through (1,2,3) and parallel to the plane x+3y-5z=7 .

20. Find the point where the line segment joining (-1,2,3) and (2,3,4) meets yz-plane .