DPP
DAILY PRACTICE PROBLEMS

CLASS : XIIth **SUBJECT : MATHS**
DATE : **DPP NO. : 2**

Topic :- THREE DIMENSIONAL GEOMETRY

1. The point of intersection of the lines $\frac{x-5}{3}=\frac{y-7}{-1}=\frac{z+2}{1}, \frac{x+3}{-36}=\frac{y-3}{2}=\frac{z-6}{4}$ is

a) $(2,10,-4)$ b) $\left(21,\frac{5}{3},\frac{10}{3}\right)$ c) $(5,-7,-2)$ d) $(-3,3,6)$

2. If the position vectors of the points A and B are $3\hat{\imath}+\hat{\jmath}+2\hat{k}$ and $\hat{\imath}-2\hat{\jmath}-4\hat{k}$ respectively, then the equation of the plane through B and perpendicular to AB is

a) $2x+3y+6z+28=0$
b) $3x+2y+6z=28$
c) $2x-3y+6z+28=0$
d) $3x-2y+6z=28$

3. The point equidistant from the point $(a,0,0)$, $(0,b,0)$, $(0,0,c)$ ad $(0,0,0)$ is

a) $\left(\frac{a}{3},\frac{b}{3},\frac{c}{3}\right)$ b) (a,b,c) c) $\left(\frac{a}{2},\frac{b}{2},\frac{c}{2}\right)$ d) None of these

4. If a plane meets the coordinate axes at A, B and C such that the centroid of the triangle is $(1,2,4)$, then the equation of the plane is

a) $x+2y+4z=12$ b) $4x+2y+z=12$ c) $x+2y+4z=3$ d) $4x+2y+z=3$

5. If the coordinates of the vertices of a ΔABC are $A(-1,3,2)$, $B(2,3,5)$ and $C(3,5,-2)$, then $\angle A$ is equal to

a) $45°$ b) $60°$ c) $90°$ d) $30°$

6. The distance between the line $\vec{\mathbf{r}}=2\hat{\mathbf{i}}-2\hat{\mathbf{j}}+3\hat{\mathbf{k}}+\lambda(\hat{\mathbf{i}}-\hat{\mathbf{j}}+4\hat{\mathbf{k}})$ and the plane $\vec{\mathbf{r}}\cdot\left(\hat{\mathbf{i}}+5\hat{\mathbf{j}}+\hat{\mathbf{k}}\right)=5$ is

a) $\frac{10}{3}$ b) $\frac{3}{10}$ c) $\frac{10}{3\sqrt{3}}$ d) $\frac{10}{9}$

7. A point on XOZ- plane divides the join of $(5,-3,-2)$ and $(1,2,-2)$ at

a) $\left(\frac{13}{5},0,-2\right)$
b) $\left(\frac{13}{5},0,2\right)$
c) $(5,0,2)$
d) $(5,0,-2)$

8. A plane makes intercepts $-6,3,4$ upon the coordinate axes. Then, the length of the perpendicular from the origin on it is

a) $\frac{2}{\sqrt{29}}$ b) $\frac{3}{\sqrt{29}}$ c) $\frac{4}{\sqrt{29}}$ d) $\frac{12}{\sqrt{29}}$

9. The equation of the plane counting the lines
$\frac{x-1}{2}=\frac{y+1}{-1}=\frac{z}{3}$ and $\frac{x}{2}=\frac{y-2}{-1}=\frac{z+1}{3}$ is
a) $8x-y+5z-8=0$ b) $8x+y-5z-7=0$ c) $x-8y+3z+6=0$ d) $8x+y-5z+7=0$

10. The equation of the plane which bisects the line joining (2, 3,4) and (6, 7, 8), is
a) $x-y-z-15=0$ b) $x-y+z-15=0$ c) $x+y+z-15=0$ d) $x+y+z+15=0$

11. The distance between the points (1,4,5) and (2,2,3) is
a) 5 b) 4 c) 3 d) 2

12. The equation of the plane through the points $(1, 2, 3)$, $(-1, 4, 2)$and $(3, 1, 1)$ is
a) $5x+y+12z-23=0$ b) $5x+6y+2z-23=0$
c) $x+6y+2z-13=0$ d) $x+y+z-13=0$

13. Equation of the plane parallel to the planes
$x+2y+3z-5=0, x+2y+3z-7=0$ and equidistant from them is
a) $x+2y+3z-6=0$ b) $x+2y+3z-1=0$
c) $x+2y+3z-8=0$ d) $x+2y+3z-3=0$

14. The image of the point $(1, 2, 3)$ in lie $\frac{x}{2}=\frac{y-1}{3}=\frac{z-1}{3}$ is
a) $\left(1,\frac{5}{2},\frac{5}{2}\right)$ b) $\left(1,\frac{9}{4},\frac{11}{4}\right)$ c) $(1, 3, 2)$ d) $(3, 1, 2)$

15. If O is the origin and $OP=3$ with direction ratios $-1, 2, -2$, then coordinates of P are
a) $(1, 2, 2)$ b) $(-1, 2, -2)$ c) $(-3, 6, -9)$ d) $(-1/3, 2/3, -2/3)$

16. The equation of the sphere touching the three coordinate planes is
a) $x^2+y^2+z^2+2a(x+y+z)+2a^2=0$ b) $x^2+y^2+z^2-2a(x+y+z)+2a^2=0$
c) $x^2+y^2+z^2\pm 2a(x+y+z)+2a^2=0$ d) $x^2+y^2+z^2\pm 2ax\pm 2ay\pm 2az+2a^2=0$

17. The angle between the line $\frac{x}{2}=\frac{y}{3}=\frac{z}{4}$ and the plane $3x+2y-3z=4$ is
a) 45° b) 0° c) $\cos^{-1}\left(\frac{24}{\sqrt{29}\sqrt{22}}\right)$ d) 90°

18. The equation of a line of intersection of planes $4x+4y-5z=12$ and $8x+12y-13z=32$ can be written as
a) $\frac{x-1}{2}=\frac{y+2}{-3}=\frac{z}{4}$ b) $\frac{x-1}{2}=\frac{y-2}{3}=\frac{z}{4}$ c) $\frac{x}{2}=\frac{y+1}{3}=\frac{z-2}{4}$ d) $\frac{x}{2}=\frac{y}{3}=\frac{z-2}{4}$

19. Let the line$\frac{x-2}{3}=\frac{y-1}{-5}=\frac{z+2}{2}$ lies in the plane $x+3y-\alpha z+\beta=0$ Then (α, β) equals
a) $(6, -17)$ b) $(-6, 7)$ c) $(5, -15)$ d) $(-5, 15)$

20. If a line makes angles α,β,γ and δ with four diagonals of a cube, then the value of $\sin^2\alpha+\sin^2\beta+\sin^2\gamma+\sin^2\delta$, is
a) $\frac{4}{3}$ b) $\frac{8}{3}$ c) $\frac{7}{3}$ d) 1