CHAPTER – 11 (THREE DIMENSION GEOMETRY)

TRUE FALSE QUESTIONS

Sl.No	State True or False
1	Cartesian form of equation of line $\vec{r} = 3\hat{i} - 4\hat{j} + 3\hat{k} + \lambda(-5\hat{i} + 7\hat{j} + 2\hat{k})$ is $\frac{x-3}{-5} = \frac{y+4}{7} = \frac{z-3}{2}$
2	The perpendicular distance from the point(2,1,-1) to the plane x-2y+4z = 9 is
3	The equation of line which passing through the point (-2,4,-5) and parallel to the line $\frac{x+3}{3} =$ $\frac{4-y}{5} = \frac{z+8}{6}$ is $\frac{x+3}{3} = \frac{4-y}{-5} = \frac{z+8}{6}$
4	Two lines are said to be Skew line iff they are neither parallel nor intersecting
5	Equation of plane passing through the point (1,0,0) ,(0,1,0) and (0,0,1) is x + y + z = 1
6	Equation of X- axis is x = 0
7	The image of the point (-2,3,5)in the plane XOY is (-2,3,-5)
8	Direction cosines of line : x = - 3 , $\frac{y-4}{3} = \frac{2-z}{1}$ is $<0, 3, -1>$
9	The Direction cosines of a vector parallel to the line $\frac{4-x}{2} = \frac{y+3}{3} = \frac{z+2}{6}$ is $<\frac{-2}{7}, \frac{3}{7}, \frac{6}{7}>$

10	The equation of plane with intercept 3 on y-axis and parallel to ZOX plane is y = 3
11.	Points A(2,3,-4) B(1,-2,3) and C(3,8,-11) are collinear.
12.	Direction cosines and direction ratios are proportional to each other.
13.	Lines $\vec{r} = \hat{i} + 2\hat{j} - 4\hat{k} + \lambda(2\hat{i} + 3\hat{j} + 6\hat{k})$ and $\vec{r} = \hat{i} + 2\hat{j} - 4\hat{k} + \lambda(3\hat{i} + \hat{j} + 5\hat{k})$ are parallel.
14.	Distance of the plane 2x-3y+4z-6=0 from the origin is 6.
15.	Distance between the lines $\vec{r} = \hat{i} + 2\hat{j} - 4\hat{k} + \lambda(2\hat{i} + 3\hat{j} + 6\hat{k})$ and $\vec{r} = 3\hat{i} + 3\hat{j} - 5\hat{k} + \lambda(2\hat{i} + 3\hat{j} + 6\hat{k})$ is
16.	Cartesian equation of line $\vec{r} = 5\hat{i} - 4\hat{j} + 6\hat{k} + \lambda(3\hat{i} + 7\hat{j} + 2\hat{k})$ is $\frac{x-5}{3} = \frac{y+4}{7} = \frac{z-6}{2}$
17.	Intercept form of the equation of the plane is $\frac{x}{a} + \frac{y}{b} + \frac{z}{c} = 0$
18.	The length of the perpendicular from origin to the plane $\vec{r} \cdot \vec{N} = d$ is $\frac{\lvert d \rvert}{\lvert N \rvert}$
19.	Distance of the point (-6,0,0) from the plane 2x-3y+6z-2=0 is 5
20.	If l, m and n are direction cosine then $l^2 + m^2 + n^2 = 0$
21.	The direction cosine of the vector($2\hat{i} + \hat{j} - 2\hat{k}$) are 2,1,-2. (T/F)
22.	The distance of of the point A (2,-2,1) from the origin is 6 unit. (T/F)
23.	The equation of the xy plane is z=0 (T/F)
24.	The equation of the plane passing through the points A (-3,5,0) ,B(1,-2,5) and C (0,-5,-1) is 3x+y-z+4=0 (T/F)
25.	If the planes 2x-4y+3z=5 and $x + 2y + \mu z = 12$ are perpendicular to each other then the value of μ is -2 . (T/F)
26	The equation to the plane passing through the point (2,-1,3) which is the foot of perpendicular drawn from the origin to the plane is 2x-y+3z-14=0 (T/F)
27	

	The difference between the distances of the points (2,3,4) and (1,1,4) from the plane 3x-6y+2z+11=0 is 11/7. (T/F)
28	The shortest distance between the lines $\frac{x-3}{3}=\frac{y-8}{-1}=\frac{z-3}{1}$ and $\frac{x+3}{-3}=\frac{y+7}{2}=\frac{z-6}{4}$ is $8\sqrt{30}$.
29.	The direction cosines of a line equally inclined with the co-ordinate axes are , , .
30.	A line makes the same angle θ ,with each of the x and z axes .If the angle β , which it makes with y- axis , is such that $sin^2\beta = 3sin^2\theta$ then the value of $cos^2\theta$ is 3/5.
31.	The line which passes through the origin and intersect the two lines $\frac{x-1}{2}=\frac{y+3}{4}=\frac{z-5}{3}$, $\frac{x-4}{2}=\frac{y+3}{-3}=\frac{z-14}{4}$ is $\frac{x}{1}=\frac{y}{3}=\frac{-z}{5}$
32.	The condition if the lines whose vector equations are $\vec{r}=\vec{a}+t\vec{b}$, $\vec{r}=\vec{c}+td$ are coplanar is $(\vec{a}-\vec{c})\cdot b\times d=0$.
33.	A vector r whose magnitude ia 12 units, the vector which is equally inclined to the positive axes is .
34.	The equation of plane parallel to the xz-plane and at a distance a from it is x=z=a.
35	The two lines are parallel then their direction ratios are proportional.
36	If two planes are perpendicular, then the dot product of their normal vectors is 1
37.	The perpendicular distance of the point(2,1,-1) from the plane x-2y+4z=9 is
38.	The perpendicular distance between the planes x-2y+z=5 and 2x-4y+2z=6 is
39	The foot of the perpendicular from the point A(1,3,4) on the plane 2x-y+z+3=0 is (-1,4,3) .
40.	The vector equation of the line $\frac{x-1}{2}=\frac{y-2}{1}=\frac{z-3}{-1}$ is $\vec{r}=2\vec{i}+\vec{j}-\vec{k}+\lambda(\vec{i}+2\vec{j}-3\vec{k})$
41.	The lines $\vec{r}=\vec{a}_1+\lambda\vec{b}$ and $\vec{r}=\vec{a}_2+\lambda\vec{b}$ are parallel .
42.	

	The intercepts cut off by the plane 5y+8=0 on the axes(x,y,z axes) are $0, -\frac{8}{5}, 0$
43.	The coordinates of the point where the line through (5,1,6) and (3,4,1) crosses the YZ- plane is $(0, \frac{17}{2}, \frac{-13}{2})$
44	Z=2 is the equation of plane
45	Ax+by+cz+d=0 is the equation of line
46	There can pass one and only one plane from three non-collinear points
47	Shortest distance can't find between two skew lines
48	Equation of line passing through point $\vec{b}$ and parallel to vector $\vec{a}$ is $\vec{r} = \vec{a} + y\vec{b}$
49	If vector equation of a line is given then we can't find Cartesian equation of line from vector equation
50	Equation of plane is ax+by+cz+d=0, where a,b,c are the dc'c of the line parallel to the plane
51	The intercepts cut off by the plane $2x + y - z = 5$ are (5/2,5,-5)
52	Dr's of x-axis are (0,1,0)
53.	The distance of the point (2, 1, –1) from the plane $x + 2y - 4z = 9$ is 13
54.	The normal of plane is making angles a, b, c at co-ordinate axes, then sum of squares of sines of these angles is 1.
55	The sum of intercepts cut off by the plane $2x + y - z = 5$, on the co-ordinate axes is -5/2
56	If P' is the image of a point P w.r.t. a plane, then line joining P and P' will be perpendicular to plane.

ANSWER KEY SHEET: TRUE FALSE QUESTIONS

Q.No.	Answer
1	True
2	False
3	False
4	True
5	True
6	False
7	True
8	False
9	True
10	True
11.	True
12	True
13	False
14	False
15	True
16	True
17	False
18	True
19	False
20	False
21.	False

22	False
23	True
24	True
25	False
26	True
27	False
28	False
29	False
30	True
31	False
32	True
33	True
34	False
35	True
36	False
37	True
38	False
39	True
40	False
41	True
42	False
43	True
44	True
45	False
46	True
47	False
48	False
49	False
50	False
51	True
52	False

53	False
54	True
55	False
56	True

Prepared by : PGT(Maths) of BHUBANESWAR REGION, GUWAHATI REGION, KOLKATA REGION, SILCHAR REGION, RANCHI REGION & TINSUKIA REGION

Vetted by : SILCHAR REGION