

Q.1	The point (4, 0, 0) lie on	·						
	(a) X-axis	(b) Y-axis	(c) Z-axis	(d) Y–Z plane				
Q.2	The point $(4, 2, 0)$ lie on (a) X – Y plane (c) Y – Z	 Z plane (c) X – Z plane	(d) X – axis					
03	What are the coord	linates of the point	that divides the line	segment hetween				
Q.5	(1 2 3) and $(4 5 6)$ inte	$\frac{1}{2}$	that divides the line	segment between				
	(1, 2, 3) and $(4, 3, 0)$ mu (a) $(3, 4, 5)$	(b) $(5 \ 4 \ 3)$	(c) (5 3 4)	(d) (4 5 3)				
0.4	(a) $(3, 4, 5)In what ratio does the po$	(0) $(3, 4, 5)$ internally div	ride the line segment betw	(u) (+, 5, 5)				
Υ.Τ	(1, 2, 3) and $(4, 5, 6)$?							
	(a) 1·2	(h) 2·1	(c) 3·4	(d) 4·3				
05	Determine the coordinat	es of the triangle's centro	id if its vertex coordinate	s are				
Q.0	(7.6 A) (5.4.6) and (9.5.8)							
	(7, 0, 1), (0, 1, 0), and (0)	(h) (7 3 5)	(c)(5,3,7)	(d) (3 5 7)				
0.6	Identify the points that t	risect the line connecting	$(4 \ 9 \ 8)$ and $(13 \ 27 \ -4)$	(u)(0,0,1)				
2.0	(a) $(0, 21, 10)$	(b) $(0, 21, 4)$	(c) (10, 21, 0)	(d) (4 4 0)				
0.7	The locus of the point w	here $\mathbf{x} = 0$ and $\mathbf{v} = 0$ is.	(0) (10) = 1, 0)					
	(a) Equation of x-axis		(b) Equation of v-axis					
	(c) Equation of z-axis	2						
0.8	The distance of the foot	of the perpendicular draw	n from the point P(3, 6, 7) to the v-axis is.				
U	(a) $\sqrt{48}$	(h) $\sqrt{45}$	(c) 3	(d) $\sqrt{58}$				
0.9	The equation representing the $X7$ -nlane is							
X	(a) $x = 0$	(b) $x = 0, y = 0$	(c) $v = 0$	(d) $v = 0, z = 0$				
0.10	The points (0, 7, 10), (-1	. 6. 6). and (-4. 9. 6) const	itute a/an					
v	(a) Right triangle but not isosceles (b) Isosceles triangle but not right angled							
	(c) Isosceles right triang	le	(d) Equilateral triangle					
Q.11	In what ratio is the line s	segment joining the points	(3, 4, 10) and (-3, 2, 5) divided by the x-axis?					
-	(a) 2:1 internally	(b) 2:1 extremely	(c) 1: 2 internally	(d) 1: 2 externally				
Q.12	The distance of the foot of the perpendicular drawn from the point (3, 4, 5) to the z-axis is.							
	(a) 5 units	(b) $\sqrt{34}$ units	(c) $\sqrt{41}$ units	(d) $2\sqrt{5}$ units				
Q.13	If the point (-4, 3, 5) is re	flected in the XZ-plane to o	obtain its image Q, then th	e coordinates of Q are.				
	(a) (-4, -3, -5)	(b) (-3,-4, 5)	(c) (4, 3, 5)	(d) (-4, -3, 5)				
Q.14	If the points A (3, 2, 4), I	B (5, 4, 6), and C (9, 8, 10)) are collinear, then the ra	atio in which A divides				
	BC is.							
	(a) 1:3 internally	(b) 1: 3 externally	(c) 3: 1 internally	(d) 3:1 externally				
Q15	The point where the XY-plane intersects with the YZ-plane is referred to as.							
	(a) x - axis	(b) y - axis	(c) z - axis	(d) Origin				
Q.16	If the midpoints of the sides of a triangle are given by (1, 2, 3), (3, 0, 1), and (2, -2, 5), then the							
	centroid is.							
	(a) (0, 0, 0)	(b) (1, 2, 3)	(c) (2, 0, 1)	(d) (2, 3, 0)				
Q.17	In what ratio is the line s	egment joining the points	(2, 4, 5) and $(3, -4, -5)$ div	vided by the XY-plane?				
	(a) 1:2	(b) 2:1	(c) 1:1	(d) 3:2				

Q.18	The reflection of the point	nt (-2, 3, 5) in the XY-plan	ie is.			
	(a) (-2, -3, -5)	(b) (-2, 3, 5)	(c) (2, 3, 5)	(d) (-2, 3, 5)		
Q.19	The ratio in which the	line segment joining A (2	2, 1, 5) and B (3, 4, 3) is	divided by the plane		
	x + 2y - z = 0 is.					
	(a) 2:3	(b) 8:1	(c) 1:8	(d) 4:3		
0.20	The minimum distance of	of the point (a, b, c) from t	the v-axis is.			
v	(2) 2	(h) $\sqrt{a^2 + b^2 + c^2}$	(c) $\sqrt{a^2 + c^2}$	(d) $\sqrt{b^2 + c^2}$		
0.21	(a) a The graph of the equation	(0) va $\pm 0 \pm 0$	(c) va + c	(u) v U + C		
Q.21	The graph of the equation	$\sin x^2 + y^2 = 0$ in the three	e dimensional space is.			
	(a) x - axis	(b) $y - axis$	(c) $z - axis$	(d) XY-plane		
Q.22	A point located on the y-	-axis at a distance of 20 ur	hits from the point $(2, 2, 5)$) IS.		
	(a) (1, 1, 2)		(b) (0, 4, 0)			
	(c) (4, -4, 0)		(d) No such point possib	ole		
Q.23	In what ratio is the line s	segment joining the point	s (3, 0, 5) and (-2, 3, 2) div	vided by the YZ-plane?		
	(a) 4:5	(b) 2:3	(c) 5:3	(d) 3:2		
Q.24	Given three points P (0,	1, 2), Q (4, -2, 1), and R (0), 0, 0), the angle \angle PRQ is.			
	(a) $\frac{\pi}{-}$	(b) $\frac{\pi}{2}$	(c) $\frac{\pi}{-}$	(d) $\frac{\pi}{2}$		
0.25	A point with a v goodi	$(2)_2$	⁽⁻⁾ 3	$(-)_6$		
Q.25	A point with a y-coordi		e segment connecting the	e points (-2, 3, 4) and		
	(6, 10, 18). The coordina	ates of this point are.	10			
	(a) $\left(\frac{10}{7}, -6, 10\right)$	(b) $\left(-\frac{10}{7}, 6, -10\right)$	(c) $\left(\frac{10}{7}, 6, 10\right)$	(d)(0,0,0)		
0.26	The coordinates of the r	point that is equidistant fi	com the points A $(0, 0, 0)$,	B (4, 0, 0), C (0, 6, 0),		
t	and D (0, 0, 8) are.	1				
	(a) (3 5 1)	(h) (2, 6, 8)	(c)(-2,3,4)	(d) (2 3 4)		
0.27	The minimum distance ((0)(2,0,0)	(c)(2, 5, 1) $x^2 \pm x^2 = 0$ is	(u) (2, 3, 1)		
Q.27		$\int dx = \int dx$	x + y = 0 is.	() ⁵		
	(a) 5 units	(b) $\sqrt{10}$ units	(c) 2√5 units	(d) $\frac{3}{\sqrt{2}}$ units		
Q.28	If the total of the square	res of the distances from	n the point (x, y, z) to th	e points (a, 0, 0) and		
	(-a, 0, 0) is 2c, then whic	ch of the following statem	ents is accurate?			
	(a) $x^2 - a^2 = c^2 - y^2 - c^2$	z ²	(b) $x^2 + a^2 = c^2 + y^2 + c^2$	z ²		
	(c) $x^2 + a^2 = 2c^2 - v^2 - v^2$	- z ²	(d) $x^2 + a^2 = c^2 - v^2 - c^2$	z^2		
0.20	$Th = m = \frac{1}{m} + \Lambda(0, 0, 0) D(2)$	$(1 \sqrt{2} 0) p(1 \frac{1}{2} \sqrt{2})$	2			
Q.29	The point A(0,0,0), B(2,0	$J, 0), C(1, \sqrt{3}, 0) D(1, \frac{1}{\sqrt{3}}, \frac{1}{\sqrt{3}})$	$\frac{1}{3}$) are the vertices of a.			
	(a) Rectangle	(b) Square	(c) Regular tetrahedron	(d) Rhombus		
Q.30	The shortest distance of	the point (1, 2, 3) from th	ne x-axis is.			
	(a) 1 unit	(b) $\sqrt{6}$ units	(c) $\sqrt{13}$ units	(d) $\sqrt{14}$ units		
0.31	Given that the orthocen	ter and centroid of a triar	rgle are (-3, 5, 1) and (3,	31) respectively. the		
L	circumcenter of the tria	ngle is	-8	-, _, _,, ,, , ,		
	(a) (6, 2, -2)	(h) (1 4 0)	(c)(6,2,2)	(d) (6 - 2 - 2)		
0.22	(a) (0, 2, -2) (0) (1, 4, 0) (0) (0, 2, 2) (0) (0, -2, 2					
Q.32	na parallel to the goordinat	is a planage than the length	assing through the points	(2, 5, 5) and $(0, 7, 9)$		
	parallel to the coordinat	e planes, then the length (of its diagonal is.			
	(a) √48 units	(b) $2\sqrt{14}$ units	(c) 3√14 units	(d) √14 units		
Q.33	If the endpoints of the di	iagonal of a square are (1,	2, 3) and (3, -4, 3), then t	he length of the side is.		
	(a) $2\sqrt{2}$ units	(b) 2 Units	(c) $\sqrt{2}$ units	(d) 4 units		
Q.34	If the origin serves as t	he centroid of the triang	le with vertices P (3a, 3,	6), Q (-4, 2b, -8), and		
	R (8, 12, 2c), then the values of a, b, and c are.					
	$(a)^{\frac{4}{2}}$ 12	(h) $-\frac{4}{2}$ $-\frac{15}{1}$ 1	(c) $32 - \frac{4}{7}$	(d) $\frac{4}{5} \frac{15}{1}$ 1		
.	(u) ₃ , 1,2	(b) 3' 2'	(c) 5,2, 5	$(u)_{3,2}^{2,1}$		
Q.35	Given the three vertices	s of a parallelogram ABC	D as A(3, -1, 5), B(1, -2, -	-4), and C(0, 3, 0), the		
	coordinates of the fourth	n vertex are.				
	(a) (2, 4, 9)	(b) (2, -4, -9)	(c) (0, 4, 9)	(d) (0, -4, -9)		
Q.36	The external division rat	tio in which the line segme	ent joining A (1, 2, 3) and I	B (3, 4, 6) is divided by		
	the XY-plane is.					
	(a) 2:1	(b) 1:2	(c) 2:3	(d) 3:2		

Q.37	A line is parallel to the YZ-plane if all the points on the line share the same.						
	(a) x-coordinates		(b) y-coordinates				
	(c) z-coordinates		(d) Distance from origin				
Q.38	The equation $x = C$ signi	The equation $x = C$ signifies a plane that is parallel to.					
	(a) YZ-plane	(b) XY-plane	(c) XZ-plane	(d) x - axis			
Q.39	The plane uniquely defin	ed by the x-axis and y-ax	is is referred to as				
	(a) XY-plane	(b) YZ-plane	(c) XZ-plane	(d) None of these			
Q.40) Three planes that are mutually perpendicular divide the space into.						
	(a) 6 parts	(b) 8 parts	(c) 4 parts	(d) 10 parts			
Q.41	A parallelepiped is creat	ed by planes passing thro	ugh the points (1, 2, 3) an	d (6, 8, 18) parallel to			
	the coordinate planes. A	mong the following optio	ns, which one is not the le	ength of an edge of the			
	rectangular parallelepip	ed?					
	(a) 5 units	(b) 10 units	(c) 15 units	(d) 6 units			
Q.42	Determine the coordinates of the point where the line passing through (3, 4, 1) and (5, 1, 6						
	intersects the XY-plane.						
	(a) $\left(\frac{13}{5}, \frac{23}{5}, 0\right)$	(b) (0,0,0)	(c) $\left(-\frac{13}{5}, -\frac{23}{5}, 0\right)$	(d) $\left(-\frac{13}{5}, \frac{23}{5}, 0\right)$			
Q.43	The medians of a triangle intersect at (0, 3, -1), and two vertices are given as (3, 4, 2) and (1, 3, 3).						
	Find the coordinates of the third vertex of the triangle.						
	(a) (3, 1, -8)	(b) (4, 2, 8)	(c) (0, 0, 0)	(d) (-4, 2, -8)			
Q.44	Determine the ratio in w	which the plane $2x + 3y +$	5z = 1 divides the line set	egment connecting the			
	points (1, 0, 0) and (1, 3, 5).						
	(a) 7:8	(b) 13: 12	(c) 15:1	(d) 1:15			



- **Q.1** In which octant is the point (-1, -5, -7) situated?
- **Q.2** In which octant does the point (-1, 2, 6) lies?
- **Q.3** Determine the octant in which the points (-3, 2, 1) and (-4, 6, -5) are positioned.

Calculate the distance between the following pairs of points:

- **Q.4** (5, 6, 7) and (2, 6, 3)
- **Q.5** (-3, 7, 2) and (2, 4,-1)
- **Q.6** (2,-1, 3) and (-2, 1, 3)
- **Q.7** Confirm whether the three points a (1, 2, 3), b (3, 1, 2), and c (2, 3, 1) constitute the vertices of an equilateral triangle.
- **Q.8** Ascertain whether the three points a (3, 0, 3), b (5, 3, 2), and c (6, 5, 5) serve as the vertices of an isosceles triangle.
- **Q.9** Verify that the points A (3, 2, 1), B (5, 3, -2) and C (-1, 0, 7) are collinear.
- **Q.10** If a point resides in the XZ-plane, what is its x-coordinate?
- **Q.11** Which plane does the point (4, 2, 0) belong to?
- **Q.12** If a point is situated in the XY-plane, what is its z-coordinate?
- **Q.13** Which octant does the point (-6, 5, -6) occupy?
- **Q.14** Determine the distance between the points (-1, -1, 1) and (0, 1, 0).
- **Q.15** If the origin serves as the centroid of a triangle formed by the vertices (a, 2, 3), (-2, b, 6), and (-4, 6, 2c), determine the values of a, b, and c.
- **Q.16** Determine the coordinates of the point where the line passing through A (3, 5, 2) and B (4, 2, 8) intersects the XY-plane.
- **Q.17** Determine the ratio in which the point (5, 4, a) divides the line segment joining (3, 2, 4) and (9, 8, 10). Additionally, find the value of 'a'.
- **Q.18** Find the vertices of a triangle given the midpoints of its sides as (5, 7, 11), (0, 8, 5), and (2, 3, -1).
- **Q.19** Demonstrate the collinearity of the points A(2, 3, 4), B(-1, 2, 3), and C(-4, 1, -10), and determine the ratio in which point A divides the line segment BC.
- **Q.20** The circumcenter of triangle ABC with vertices (0, 7, 10), (-1, 6, 6), and (-4, 9, 6) is represented as (α, β, γ) . The expression $|\alpha \cdot \beta \cdot \gamma|$ is equal to.
- **Q.21** Given points A (4, 5, 3), B (6, 3, 4), C (2, 4, 1), and D (0, 5, 1), the length of the projection of CD on AB that is equal to 60 is.
- **Q.22** The vertices of a cyclic quadrilateral are given as (8, 5, 6), (11, 1, 8), (9, 4, 2), and (6, -2, 0). Determine the area of the cyclic quadrilateral.
- **Q.23** The vertices of a triangle are given as (2, 1, 1), (3, 1, 2), and (-4, 0, 1). If the area of the triangle is 20 square units, then 20² is equal to.
- **Q.24** If α , β , γ are the angles formed by the line joining points A(3, 5, -2) and B(-1, 3, -4) with the coordinate axes respectively, then the value of $(\cos 2\alpha + \cos 2\beta + \cos 2\gamma)^2 + 3(\sin^2 \alpha + \sin^2 \beta + \sin^2 \gamma)$ is equal to
- **Q.25** The distance of point P(5, -7, -6) from point Q, which divides the line segment joining points A(-2, 3, 5) and B(7, 0, -1) internally in the ratio 1:2, is λ then λ^2 is equal to

ANSWER KEY – LEVEL – I

Q.	1	2	3	4	5	6	7	8	9	10
Ans.	а	а	а	b	а	С	С	d	С	С
Q.	11	12	13	14	15	16	17	18	19	20
Ans.	b	а	d	b	b	С	С	b	С	С
Q.	21	22	23	24	25	26	27	28	29	30
Ans.	С	d	d	b	С	d	b	d	С	С
Q.	31	32	33	34	35	36	37	38	39	40
Ans.	а	b	b	b	а	b	а	а	а	b
Q.	41	42	43	44						
Ans.	b	а	d	d						

ANSWER KEY – LEVEL – II

- **1.** 7th octant8
- **2.** 2^{th} octant
- **3.** The points (-3, 2, 1) lies in 2nd octant and (-4, 6, -5) lie in 6th octant.
- **4.** 5 unit
- **5.** $\sqrt{43}$
- **6.** $2\sqrt{5}$
- **20.** 128
- **21.** 8
- **22** 49
- **23.** 38
- **24.** 7
- **25..** 178