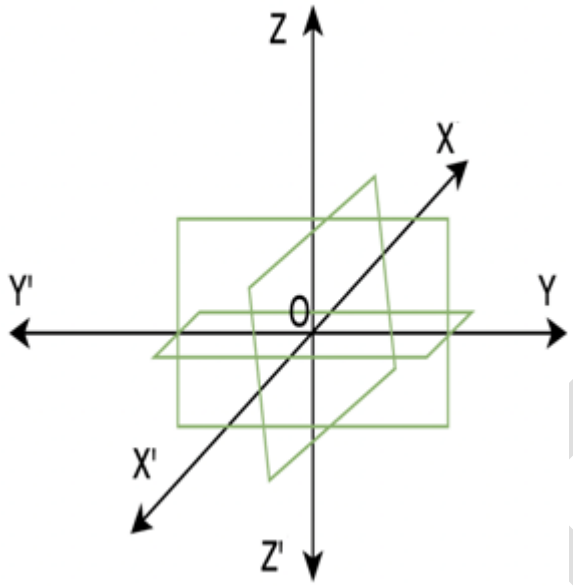
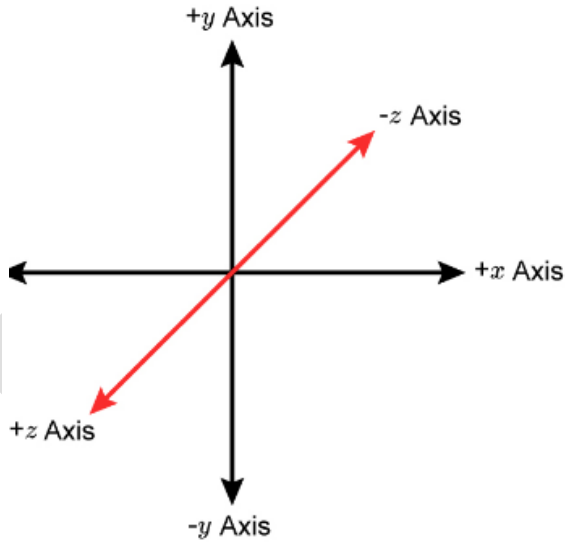
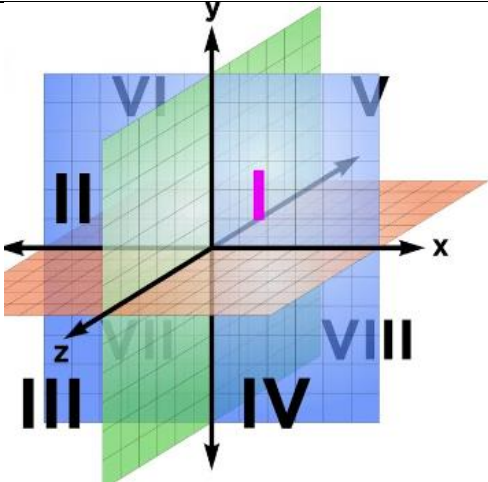
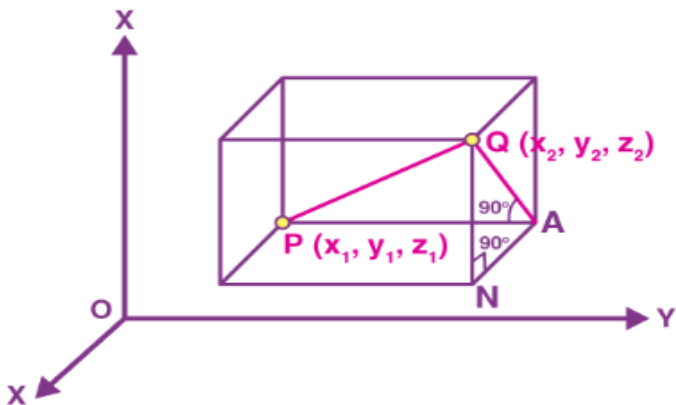
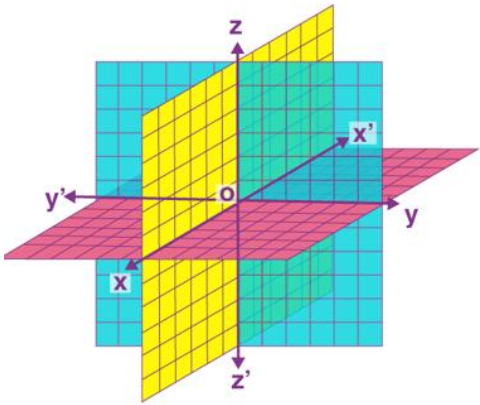


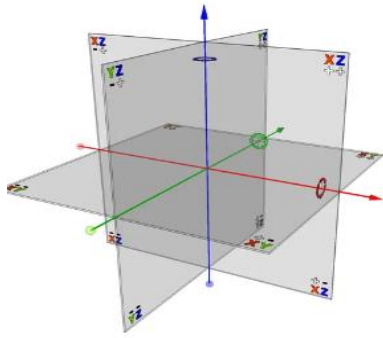
CHAPTER-12  
INTRODUCTION TO 3D  
01 MARK TYPE QUESTIONS

Q. NO	QUESTION	MARK
1.	<div style="text-align: center;">  </div> <p>Coordinate planes divide the space into _____ octants.</p> <p>A. 4      B. 6      C. 8      D. 10</p>	1
2.	<div style="text-align: center;">  </div> <p>A point is on the x-axis. Which of the following represent the point?</p> <p>A. (0, x, 0)      B. (0, 0, x) C. (x, 0, 0)      D. None of the above</p>	1

3.	 <p>Which octant do the point <math>(-5, 4, 3)</math> lie?  A. Octant I      B. Octant II      C. Octant III      D. Octant IV</p>	1
4.	 <p>What is the distance between the points <math>(2, -1, 3)</math> and <math>(-2, 1, 3)</math>?  A. <math>2\sqrt{5}</math> units      B. 25 units      C. <math>4\sqrt{5}</math> units      D. <math>\sqrt{5}</math> units</p>	1
5.	<p>The maximum distance between points <math>(3\sin \theta, 0, 0)</math> and <math>(4\cos \theta, 0, 0)</math> is:  (a) 3 units  (b) 4 units  (c) 5 units  (d) Cannot be determined</p>	1
6.	 <p>The locus represented by <math>xy + yz = 0</math> is:  (a) A pair of perpendicular lines  (b) A pair of parallel lines</p>	1

- (c) A pair of parallel planes  
 (d) A pair of perpendicular planes

7.

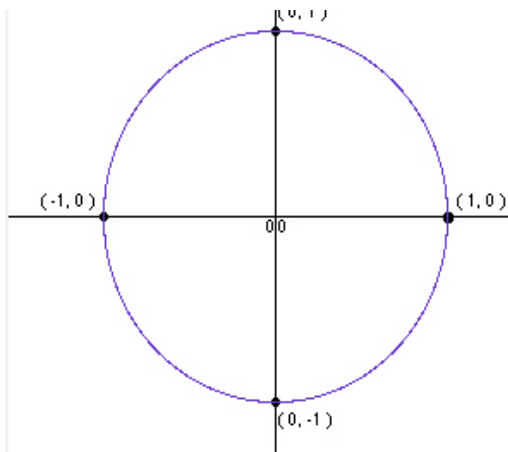


Find the image of  $(-2, 3, 4)$  in the  $yz$  plane.

- A.  $(-2, 3, 4)$   
 B.  $(2, 3, 4)$   
 C.  $(-2, -3, 4)$   
 D.  $(-2, -3, -4)$

1

8.

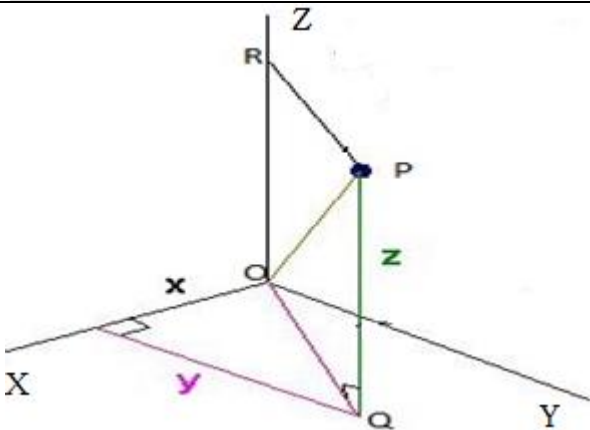


If  $x^2 + y^2 = 1$ , Find the distance of the point  $(x, y, \sqrt{1 - x^2 - y^2})$  from the origin.

- (a) 1      (b) 0      (c) 2      (d) 3

1

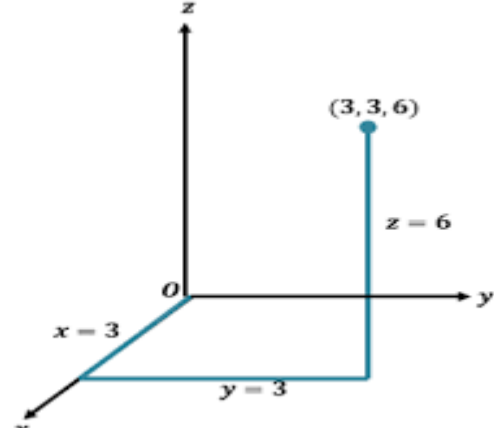
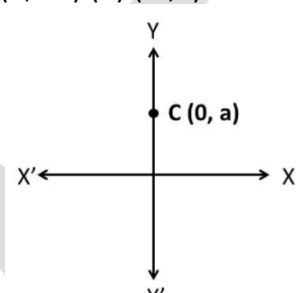
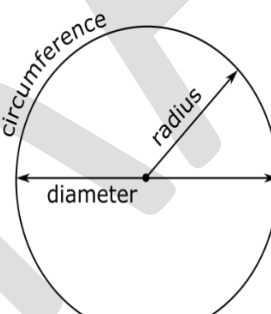
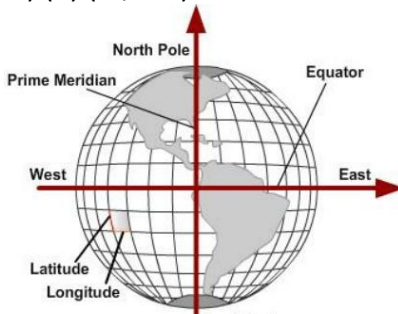
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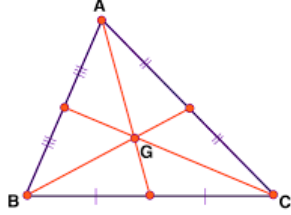




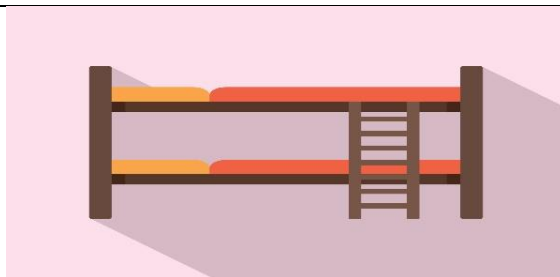
The distance of the point  $P(x, y, z)$  from the origin  $(OP)$  is: ----

- (a)  $\sqrt{x^2 + y^2}$       (b)  $\sqrt{x^2 + y^2 + z^2}$   
 (c)  $\sqrt{y^2 + z^2}$       (d) None of these

1

10.	 <p>Calculate the perpendicular distance of the point P (3,3,6) from the XY – Plane.</p> <p>(a) 8    (b) 7    (c) 6    (d) None of the above</p>	1
11.	<p>1. Rohan standing on the y-axis is equidistant from the points (3, 2) and (-5, -2) , the position of Rohan is (a) (-2, 0) (b) (0, -2) (c) (0, -1) (d) (-1,0)</p> 	1
12.	<p>2. Amit is standing on the perimeter of a circle at the point (-3, -1) with diameter 20 units. If the Amar is at the centre of the circle (2a-1,3a + 1), then natural number a is (a) 3 (b) 4 (c) 2 (d) 1</p> 	1
13.	<p>3. Through GPS Harish found longitude and latitude as a pointC(-4, 1) that divides a virtual line segment joining the points A(2, -2) and B in the ratio 3 :5, then the position of B is (a) (-14, 6) (b) (6, -14) (c) (-14, -6) (d) (-6, -14)</p> 	1
14.	<p>4. On the occasion of Republic Day in the AirShow, 4 Fighter Planes occupied the positions A(-2, -1), B(1, 0), C(a, 3) and D(1, b) in the form of a parallelogram ABCD, then the values of a and b are</p>	1

	<p>(a) <math>a=-4, b=-2</math> (b) <math>a=-4, b = 2</math> (c) <math>a= 4, b = 2</math> (d) <math>a=2, b= -4</math></p> 	
15.	<p>5.Today OurMaths teacher told us that centroid of a triangle with vertices is <math>((x_1+x_2+x_3)/3, (y_1+y_2+y_3)/3)</math>.Now If the middle points of the sides of a triangle are <math>(1, 1), (2, -3)</math> and <math>(3, 2)</math>, then the centroidof the triangle is  (a) <math>(-2, 0)</math> (b) <math>(0,2)</math> (c) <math>(3,2)</math> (d) <math>(2, 0)</math></p> 	1
16.	<p>6. In a pdf file the images as vertices of a triangle are <math>A(-5, 3), B(p, -1)</math> and <math>C(6, q)</math>. If the centroid of the <math>\Delta ABC</math> is <math>(1, -1)</math>, then the values of p andq are  (a) <math>p=-2, q =5</math> (b) <math>p=2,q=-5</math> (c) <math>p=3, q = 5</math> (d)<math>p=-5, q =2</math></p>	1
17.	<p>7.In an interior design on a wall two intersecting lines are to be drawn joining nails. The tangent of the angle between the lines joining the nails <math>(-1,2), (3, -5)</math> and <math>(-2, 3), (5, 0)</math> is  (a) <math>37/49</math> (b)<math>73/49</math>  (c) <math>23/49</math>(d) <math>47/49</math></p> 	1
18.	<p>During the first week of May we faced thunderstorm. Four positions at intervals of 1 hour each, are <math>(-a, - b), (0, 0), (a, b)</math> and <math>(a^2, ab)</math> . What is the path of the thunderstorm?  (a) collinear  (b) vertices of a parallelogram  (c) vertices of a rectangle  (d) none of these</p> 	1
19.	<p>Our beds are parallel to x-axis. Slope of beds are :  (a)1 (b) -1 (C)0 (d)not defined</p>	1



20.	<p>An ant is walking on a wall. Considering the position of ant to be <math>(x, y)</math> the distance of the point from x-axis is :</p> <p>(a) <math>x</math> (b) <math>y</math> (c) <math>x</math> (d) <math> y </math></p>	1
21.	<p>The octants in which the points <math>(-6.5, -7.5, -8.5)</math> and <math>(8,6,5)</math> lie are respectively:</p> <p>(a) Second, Sixth          (b) Seventh, First          (c) First, Seventh          Fifth, Sixth.</p>	1
22.	<p>What is the perpendicular distance of the point P <math>(7,5,6)</math> from xy-plane?</p> <p>a) 8 units          b) 7 units          c) 6 units          5 units</p>	1
23.	<p>The distance between <math>(3,2,-1)</math> and <math>(-1,-1,-1)</math> is</p> <p>a) 5 units          b) 6 units          c) 7 units          8 units</p>	1
24.	<p>A point on ZX – plane which is equidistant from the points <math>(1,-1,0)</math> <math>(2,1,2)</math> <math>(3,2,-1)</math> is</p> <p>a) <math>(\frac{1}{5}, 0, \frac{31}{10})</math>          b) <math>(\frac{11}{2}, 0, 1)</math>          c) <math>(\frac{31}{10}, 0, \frac{1}{5})</math>          d) <math>(\frac{31}{5}, 0, \frac{1}{10})</math></p>	1
25.	<p>The equation of the line passing through the points A<math>(1,2,3)</math> and B<math>(4,-1,6)</math> is given by</p> <p>a) <math>X - y + z = 0</math></p>	1

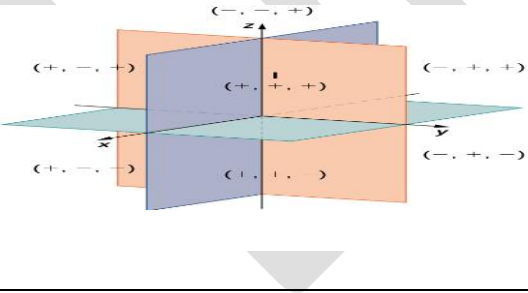
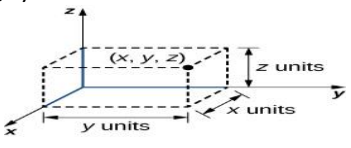
	b) $X + y - z = 0$ c) $X + y + z = 0$ $X - y - z = 0$	
26.	Which of the following equations represents a plane parallel to $yz$ – plane? a) $X = 0$ b) $Y = 0$ c) $Z = 0$ $X + y + z = 0$	1
27.	How many axes are used to represent a point in a 3D cartesian coordinate system? a) 1 b) 2 c) 3 4	1
28.	The point $A(-4, -3, -2)$ is present in a) V – octant b) VI – Octant c) VII – Octant VIII – Octant	1
29.	What is the term used to describe the point where the three coordinate axes intersect in a 3D coordinate system? a) Vertex b) Origin c) Center Intersection	1
30.	Coordinates planes divide the space into _____ octants a) 4 b) 6 c) 8 10	1
31.	A plane is parallel to $yz$ -plane so it is perpendicular to: (a) $x$ –axis (b) $y$ -axis (c) $z$ -axis (d) None of these	1
32.	Equation of $y$ -axis is considered as (a) $x = 0, y = 0$ (b) $z = 0, y = 0$ (c) $x = 0, z = 0$ (d) None of these	1
33.	What is the locus of a point for which $x=0, y=0$ ? (a) $x$ axis (b) $y$ axis (c) $z$ axis (d) $yz$ -plane	1
34.	$x$ -axis is the intersection of the Planes (a) $xy$ and $xz$ (b) $yz$ and $zx$ (c) $xy$ and $yz$ (d) none of these	1
35.	The point $(4, -2, 3)$ lies in the (a) Third Octant (b) Fifth Octant (c) Sixth Octant (d) Seventh Octant	1
36.	The Coordinates of the foot of the perpendicular drawn from the point $P(3,4,5)$ on the $yz$ -	1

	plane are (a) (3,4,0) (b) (0,4,5) (c) (3,0,5) (d) (3,0,0)	
37.	The Coordinates of the foot of the perpendicular from a point P(6,7,8) on y-axis are (a) (6,0,0) (b) (0,7,0) (c) (0,0,8) (d) (0,7,8)	1
38.	Let (3,4,-1) and (-1,2,3) be the end points of a diameter of a sphere then, the radius of the sphere is equal to (a) 2 (b) 7 (c) 6 (d) 3	1
39.	If the distance between the points (a,0,1) and (0,1,2) Is $\sqrt{27}$ , then the value of a is (a) 5 (b) $\pm 5$ (c) -5 (d) none of these	1
40.	Assertion (A): The distance between the points P (1,2,3) and R (7, 0, - 1) is $\sqrt{56}$ . Reason(R):The distance between P( $x_1, y_1, z_1$ ) and Q ( $x_2, y_2, z_2$ ) is given by $PQ = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2 + (z_2 - z_1)^2}$ (a) Both Assertion (A) and Reason (R) are the true and Reason (R) is a correct explanation of Assertion (A). (b) Both Assertion (A) and Reason (R) are the true but Reason (R) is not a correct explanation of Assertion (A). (c) Assertion (A) is true and Reason (R) is false. (d) Assertion (A) is false and Reason (R) is true	1
41.	Which octant do the point (-5,4,3) lie?  A. Octant I  B. Octant II  C. Octant III  D. Octant IV	1
42.	What is the distance between the points (2, -1, 3) and (-2, 1, 3)?  A. $2\sqrt{5}$ units  B. 25 units  C. $4\sqrt{5}$ units  D. $\sqrt{5}$ units	1
43.	The locus represented by $xy + yz = 0$ is:  (a) A pair of perpendicular lines  (b) A pair of parallel lines  (c) A pair of parallel planes	1



	(d) A pair of perpendicular planes	
44.	Find the image of $(-2, 3, 4)$ in the $yz$ plane.  A. $(-2, 3, 4)$  B. $(2, 3, 4)$  C. $(-2, -3, 4)$  D. $(-2, -3, -4)$	1
45.	The distance of the point $P(a, b, c)$ from the $x$ -axis is:  (a) $\sqrt{a^2 + c^2}$  (b) $\sqrt{a^2 + b^2}$  (c) $\sqrt{b^2 + c^2}$  (D) none of these	1
46.	The maximum distance between points $(3\sin \theta, 0, 0)$ and $(4\cos \theta, 0, 0)$ is:  (a) 3 units  (b) 4 units  (c) 5 units  (d) Cannot be determined	1
47.	The plane $2x - (1+a)y + 3az = 0$ passes through the intersection of the planes  (A) $2xy = 0$ and $y + 3z = 0$  (B) $2x - y = 0$ and $y - 3z = 0$  (C) $2x + 3z = 0$ and $y = 0$  (D) $2x - 3z = 0$ and $y = 0$	1
48.	The locus of a point which moves so that the difference of the squares of its distances from two given points is constant, is a  (a) Straight line	1

	<p>(b) Plane</p> <p>(c) Sphere</p> <p>(d) None of these</p>	
49.	<p>Three planes <math>x + y = 0</math>, <math>y + z = 0</math>, and <math>x + z = 0</math></p> <p>(a) none of these</p> <p>(b) meet in a line</p> <p>(c) meet in a unique point</p> <p>(d) meet taken two at a time in parallel lines</p>	1
50.	<p>The centroid of a triangle ABC is at the point <math>(1, 1, 1)</math>. If the coordinates of A and B are <math>(3, -5, 7)</math> and <math>(-1, 7, -6)</math>, respectively, Then the coordinates of the point C.</p> <p>(a) <math>(1, 1, 2)</math>                      (b) <math>(1, 0, 1)</math></p> <p>(c) <math>(1, 2, 3)</math>                      (d) <math>(0, 0, 2)</math></p>	1
51.	<p>YOZ-plane divides the line segment joining the points <math>(3, -2, -4)</math> and <math>(2, 4, -3)</math> in the ratio-</p> <p>a) 1: 2</p> <p>b) -4: 3</p> <p>c) -2: 3</p> <p>d) -3: 2</p>	1
52.	<p>Which octant do the point <math>(-2, 6, 3)</math> lie?</p> <p>A. Octant I</p> <p>B. Octant II</p> <p>C. Octant III</p> <p>D. Octant IV</p>	1
53.	<p>Coordinate planes divide the space into _____ octants.</p> <p>A. 4</p> <p>B. 6</p> <p>C. 8</p> <p>D. 10</p>	1
54.	<p>The perpendicular distance of the point <math>P(6, 7, 8)</math> from the XY – Plane is:</p> <p>(a) 8</p> <p>(b) 7</p> <p>(c) 6</p> <p>(d) None of the above</p>	1
55.	<p>The image of the point <math>P(1, 3, 4)</math> in the plane <math>2x - y + z = 0</math> is:</p>	1

	(a) (-3, 5, 2) (b) (3, 5, 2) (c) (3, -5, 2) (d) (3, 5, -2)	
56.	<b>The locus represented by <math>xy + yz = 0</math> is:</b> (a) A pair of perpendicular lines (b) A pair of parallel lines (c) A pair of parallel planes (d) A pair of perpendicular planes	1
57.	<b>The maximum distance between points <math>(3\sin \theta, 0, 0)</math> and <math>(4\cos \theta, 0, 0)</math> is:</b> (a) 3 units (b) 4 units (c) 5 units (d) Cannot be determined	1
58.	<b>The distance of the point P (a, b, c) from the x-axis is:</b> (a) $\sqrt{a^2 + c^2}$ (b) $\sqrt{a^2 + b^2}$ (c) $\sqrt{b^2 + c^2}$ (d) None of these	1
59.	<b>A point is on the x-axis. Which of the following represent the point?</b> A. (0, x, 0) B. (0, 0, x) C. (x, 0, 0) D. None of the above	1
60.	Equation of YOZ plane is A. $x=0$ B. $y=0$ C. $z=0$ D. none of these 	1
61.	Find the point on x-axis which is equidistant from the point A (3,2,2) and B (5,5,4). (16,0,0) (5/4,0,0)  (9,0,0) (49/4,0,0)	1

62.	Which of the following is not a coordinate axis in a 3-dimensional Cartesian coordinate system? a) X-axis      b) Y-axis      c) Z-axis      d) W-axis	1
63.	If a point lies on the positive x-axis, then its y and z coordinates are: a) $y = 0, z = 0$ b) $y > 0, z = 0$ c) $y = 0, z > 0$ d) $y > 0, z > 0$	1
64.	If the coordinates of a point are $(2, -3, 5)$ , then the point lies in which quadrant? a) First quadrant b) Second quadrant c) Third quadrant d) Fourth quadrant	1
65.	Equation of y-axis is considered as (A) $x = 0, y = 0$ (B) $y = 0, z = 0$ (C) $z = 0, x = 0$ (D) none of these	1
66.	A plane is parallel to yz-plane so it is perpendicular to: (A) x-axis      (B) y-axis      (C) z-axis      (D) none of these	1
67.	The locus of a point for which $x = 0$ is (A) xy-plane      (B) yz-plane      (C) zx-plane      (D) none of these	1
68.	The point $(-2, -3, -4)$ lies in the (A) First octant      (B) Seventh octant (C) Second octant      (D) Eighth octant	1
69.	The locus of a point for which $y = 0, z = 0$ is (A) equation of x-axis      (B) equation of y-axis (C) equation at z-axis      (D) none of these	1
70.	The distance of point $P(3, 4, 5)$ from the yz-plane is (A) 3 units      (B) 4 units      (C) 5 units      (D) 550	1
71.	Find the image of $(5, 2, -7)$ in the xy plane. a) $(5, 2, 7)$ b) $(5, -2, 7)$ c) $(-5, 2, 7)$ d) none of these.	1

**ANSWERS:**

Q. NO	ANSWER	MARKS
1.	C. 8	1
2.	C. (x, 0, 0)	1
3.	B. Octant II	1
4.	A. $2\sqrt{5}$ units	1
5.	C. 5	1
6.	d. A pair of perpendicular planes	1
7.	B. (2, 3, 4)	1
8.	A. 1	1
9.	c. $\sqrt{b^2 + c^2}$	1
10.	c. 6	1
11.	(b) (0, -2)	1
12.	(c) 2	1
13.	(a) (-14, 6)	1
14.	(c) a=4, b=2	1
15.	(d) (2, 0)	1
16.	(b) p=2, q=-5	1
17.	(a) 37/49	1
18.	(a) collinear	1
19.	C ) 0	1
20.	(b) y	1
21.	B	1
22.	C	1
23.	A	1
24.	B	1
25.	B	1
26.	A	1
27.	C	1
28.	C	1
29.	B	1
30.	C	1
31.	(a) x -axis	1
32.	(c) $x = 0, z = 0$	1
33.	(c) z axis	1
34.	(a) xy and xz	1
35.	(a) Third Octant	1
36.	(b) (0, 4, 5)	1
37.	(b) (0, 7, 0)	1
38.	(d) 3	1
39.	(b) $\pm 5$	1
40.	(a) Both Assertion (A) and Reason (R) are the true and Reason (R) is a correct explanation of Assertion (A).	1

41.	B	1
42.	A	1
43.	D	1
44.	B	1
45.	C	1
46.	C	1
47.	B	1
48.	C	1
49.	C	1
50.	A	1
51.	d	
52.	B. Octant II	
53.	C. 8	
54.	A. 8	
55.	(a) (-3, 5, 2)	
56.	(d) A pair of perpendicular planes	
57.	(c) 5	
58.	(c) $\sqrt{b^2 + c^2}$	
59.	C. (x, 0, 0)	
60.	A on yz-plane, x=0.	
61.	D $(\frac{49}{4}, 0, 0)$	
62.	d	1
63.	a	1
64.	d	1
65.	c	1
66.	a	1

67.	b	1
68.	b	1
69.	a	1
70.	c	1
71.	a) (5,2,7)	1

DRAFT