Sr. No.	The Bodwad Sarvajanik Co-op Education Society Ltd, Bodwad **Arts, Commerce & Science College, Bodwad, Dist.-Jalgaon** FYBSc Mathematics Paper III MTH 103 (A): Co-ordinate Geometry **Questions Bank**	Answer
1)	The equation $ax^2+2hxy+by^2+2gx+2fy+c=0$ represents an ellipse if $\Delta \neq 0$ and ---------- A)) $h^2-ab\ >0$ B) $h^2-ab\ <0$ C) $h^2-ab=0$ D) $h=0, a=b$	**B**
2)	The equation $ax^2+2hxy+by^2+2gx+2fy+c=0$ represents a hyperbola if $\Delta \neq 0$ and ---------- A) $h^2-ab\ <0$ B) $h^2-ab=0$ C) $h^2-ab\ >0$ D) $h=0, a=b$	**C**
3)	The general equation of second degree $ax^2+2hxy+by^2+2gx+2fy+c=0$ represents a parabola if $\Delta \neq 0$ and ---------- A) $h^2-ab\ <0$ B) $h^2-ab=0$ C) $h^2-ab\ >0$ D) $h=0, a=b$	**B**
4)	The general equation of second degree $ax^2+2hxy+by^2+2gx+2fy+c=0$ represents a circle if $\Delta \neq 0$ and ---------- A) $h^2-ab\ <0$ B) $h^2-ab\ >0$ C) $h^2-ab=0$ D) $a=b\ and\ h=0$	**D**
5)	Two spheres with centres at $C_1\ and\ C_2$ having radii $r_1\ and\ r_2$ respectively are non-intersecting if ------------- A) $c_1c_2<r_1+r_2$ B) $c_1c_2=r_1+r_2$ C) $c_1c_2>r_1+r_2$ D) $(r_1+r_2c_1c_2)^2=r^2+r_2^2$	**C**
6)	Two spheres with centres at $C_1\ and\ C_2$ having radii $r_1\ and\ r_2$ respectively touch each other externally if ------------- A) $c_1c_2<r_1+r_2$ B) $c_1c_2=r_1+r_2$ C) $c_1c_2>r_1+r_2$ D) $(c_1c_2)^2=r_1^2+r_2^2$	**B**
7)	Two spheres with centres at $C_1\ and\ C_2$ having radii $r_1\ and\ r_2$ respectively touch each other orthogonally if ------------- A) $c_1c_2=r_1+r_2$ B) $(c_1c_2)^2=r_1^2+r_2^2$ C) $c_1c_2>r_1+r_2$ D) None of these	**B**
8)	Choose the correct option .Every homogeneous equation of second order in x, y, z represents -------- A)Cone B)Right circular cylinder C)Ellipsoid D)Hyperboloid of one sheet	**A**
9)	The equation of a cone with vertex at origin is --------- A)Linear B)Cubic C)homogeneous D)non homogeneous	**C**
10)	The general equation of the cone which passes through the co-ordinate axes is- A) $ax+by+c=0$ B) $fyz+gzx+gxy=0$ C) $x^2+y^2+2gx+2fy+c=0$ D) $fyz+gzx+hxy=0$	**B**

11	Determine nature of conic is $14x^2 - 4xy + 11y^2 - 44x - 58y + 71 = 0$ given by A)Parabola B)Ellipse C)Hyperbola D)None of these	**B**
12	Determine nature of conic is $3x^2 - 10xy + 3y^2 + 14x - 2y + 3 = 0$ given by A)Parabola B)Ellipse C)Hyperbola D)None of these	**C**
13	Determine nature of conic is $5x^2 + 6xy + 5y^2 - 10x - 6y - 3 = 0$ given by A)Parabola B)Ellipse C)Hyperbola D)None of these	**B**
14	Determine nature of conic is $555x^2 - 30xy + 39y^2 - 40x - 24y - 464 = 0$ given by A)Parabola B)Ellipse C)Hyperbola D)None of these	**B**
15	Determine nature of conic is $8x^2 - 24xy + 15y^2 - 48x - 487 = 0$ given by A)Parabola B)Ellipse C)Hyperbola D)None of these	**C**
16	Determine nature of conic is $536x^2 + 24xy + 29y^2 - 10x - 6y - 3 = 0$ given by A)Parabola B)Ellipse C)Hyperbola D)None of these	**B**
17	Determine nature of conic is $5x^2 - 6xy + 5y^2 - 10x - 6y - 3 = 0$ given by A)Parabola B)Ellipse C)Hyperbola D)None of these	**B**
18	True or false .Distance Between Two points P($x_1, y_{1,} z_1$) and Q($x_2, y_{2,} z_2$) is given by $\sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2 + (z_1 - z_2)^2}$ A)True B)False	**A**
19	True or false .Relation between direction cosines: $l^2 + m^2 + n^2 = 2$ A)True B)False	**B**
20	True or False . If a, b and c any numbers such that they are proportional to l, m and n respectively then a, b and c are called as direction ratios. A)True B)False	**A**
21	True or false .If l_1, m_1, n_1 and l_2, m_2, n_2 are direction cosines of any two lines making an angle θ . then $cos\,\theta = l_1 l_2 + m_1 m_2 + n_1 n_2$ A)True B)False	**A**
22	True or false .Relation between direction cosines: $l^2 + m^2 + n^2 = 1$ A)True B)False	**A**
23	If l_1, m_1, n_1 and l_2, m_2, n_2 are direction cosines of any two lines making an angle θ . then value of $cos\,\theta$ is given by .. A)$l_1 l_2 + m_1 m_2$ B) $l_1 l_2 + m_1 m_2 + n_1 n_2$ C)1 D) 0	**B**
24	True or false .General Equation of a Plane is $ax + by + cz + d = 0$, where a, b c are the direction ratios of the normal to the plane A)True B)False	**A**

25	True or false .General Equation of a Plane is $ax^2 + by + cz + d = 0$, where a, b c are the direction ratios of the normal to the plane A)True B)False	**B**
26	True or false. In Intercept Form of Plane is $\frac{x}{a} + \frac{y}{b} + \frac{z}{c} = 1$ where a, b, c are the intercepts made with X, Y and Z-axis respectively. A)True B)False	**A**
27	True or false. In Intercept Form of Plane is $\frac{x}{a} + \frac{y}{b} + \frac{z}{c} = 0$ where a, b, c are the intercepts made with X, Y and Z-axis respectively. A)True B)False	**B**
30	True or false. In Normal Form of Plane $\boldsymbol{lx + my + nz = p}$ where l, m, n are the direction cosines of the normal to the plane and p perpendicular from the origin to the plane. A)True B)False	**A**
31	True or false. In Normal Form of Plane $\boldsymbol{lx + my + nz = p}$where l, m, n are not the direction cosines of the normal to the plane and p perpendicular from the origin to the plane. A)True B)False	**B**
32	True or false. Equation of the plane through the point(x_1, y_1, z_1) is given by $a(x - x_1) + b(y - y_1) + c(z - z_1) = 0$ where a, b c are the direction ratios of the normal to the plane. A)True B)False	**A**
33	True or false. Equation of the plane through the point(x_1, y_1, z_1) is given by $a(x - x_1)^2 + b(y - y_1) + c(z - z_1) = 0$ where a, b c are the direction ratios of the normal to the plane. A)True B)False	**B**
34	True or false. Equation of the plane through the point(x_1, y_1, z_1) is given by $a(x - x_1)^2 + b(y - y_1)^2 + c(z - z_1) = 0$ where a, b c are the direction ratios of the normal to the plane. A)True B)False	**B**
35	True or false. The length of perpendicular p from the point (x_1, y_1, z_1) to the plane $ax + by + cz + d = 0$ is given by $p = \frac{ax_1 + by_1 + cz_1 + d}{\sqrt{a^2 + b^2 + c^2}}$. A)True B)False	**A**

36	True or false. The length of perpendicular p from the point (x_1, y_1, z_1) to the plane $ax + by + cz + d = 0$ is given by $p = \frac{ax_1+by_1+cz_1+d}{\sqrt{a+b+c}}$. A)True B)False	**B**
37	True or false. The length of perpendicular p from the point (x_1, y_1, z_1) to the plane $ax + by + cz + d = 0$ is given by $p = \frac{ax_1+by_1+cz_1+d}{\sqrt{a+b+c-d}}$. A)True B)False	**B**
38	True or false. The length of perpendicular p from the point (x_1, y_1, z_1) to the plane $ax + by + cz + d = 0$ is given by $p = \frac{ax_1+by_1+cz_1}{\sqrt{a^2+b^2+c^2}}$. A)True B)False	**B**
39	True or false. .In Two Point Form , Equation of a straight line passing through (x_1, y_1, z_1), (x_2, y_2, z_2) is given by $\frac{x-x_1}{x_1-x_2} = \frac{y-y_1}{y_2-y_1} = \frac{z-z_1}{z_2-z_1}$ A)True B)False	**B**
40	True or false. .In Two Point Form , Equation of a straight line passing through (x_1, y_1, z_1), (x_2, y_2, z_2) is given by $\frac{x-x_1}{x_2-x_1} = \frac{y-y_1}{y_2-y_1} = \frac{z-z_1}{z_2-z_1}$ A)True B)False	**A**
41	True or false. .In Two Point Form , Equation of a straight line passing through (x_1, y_1, z_1), (x_2, y_2, z_2) is given by $\frac{x-x_1}{x_2-x_1} = \frac{y-y_1}{y_2-y_1} = \frac{z-z_1}{z_1-z_2}$ A)True B)False	**B**
42	True or false. .In Two Point Form , Equation of a straight line passing through (x_1, y_1, z_1), (x_2, y_2, z_2) is given by $\frac{x-x_1}{x_1-x_2} = \frac{y-y_1}{y_1-y_2} = \frac{z-z_1}{z_1-z_2}$ A)True B)False	**A**
43	True or false. .In Two Point Form , Equation of a straight line passing through (x_1, y_1, z_1), (x_2, y_2, z_2) is given by $\frac{x-x_1}{x_2-x_1} = \frac{y-y_1}{y_1-y_2} = \frac{z-z_1}{z_1-z_2}$ A)True B)False	**B**
44	True or false. .In One Point Form , Equation of a straight line $\frac{x-x_1}{a} = \frac{y-y_1}{b} = \frac{z-z_1}{c}$ where a, b,c are the direction ratios of the line. A)True B)False	**A**
45	True or false. .In One Point Form , Equation of a straight line $\frac{x-x_1}{a} = \frac{y_1-y}{b} = \frac{z-z_1}{c}$ where a, b,c are the direction ratios of the line. A)True B)False	**B**
46	True or false. Equation of a sphere with centre at C(a, b, c) and Radius “r” is given by $(x-a)^2 + (y-b)^2 + (z-c)^2 = r^2$.	**A**

	A)True B)False	
47	True or false. Equation of a sphere with centre at C(a, b, c) and Radius "r" is given by $(x-a)^2+(y-b)^2+(z-c)^2=r$. A)True B)False	**B**
48	True or false. Equation of a sphere with centre at C(a, b, c) and Radius "r" is given by $(x-a)^3+(y-b)^2+(z-c)^2=r^2$. A)True B)False	**B**
49	True or false. Equation of a sphere with centre at C(a, b, c) and Radius "r" is given by $(x-a)+(y-b)+(z-c)^2=r^2$. A)True B)False	**B**
50	True or false. Equation of a sphere with centre at C(a, b, c) and Radius "r" is given by $(x-a)+(y-b)+(z-c)=r^2$. A)True B)False	**B**
51	True or false. In General equation of a sphere $x^2+y^2+z^2+2ux+2vy+2wz+d=0$ its centre is given by $(-u,-v,-w)$. A)True B)False	**A**
52	True or false. In General equation of a sphere $x^2+y^2+z^2+2ux+2vy+2wz+d=0$ its centre is given by (u,v,w). A)True B)False	**B**
53	True or false. In General equation of a sphere $x^2+y^2+z^2+2ux+2vy+2wz+d=0$ its centre is given by $(u,-v,-w)$. A)True B)False	**B**
54	True or false. In General equation of a sphere $x^2+y^2+z^2+2ux+2vy+2wz+d=0$ its radius is given by $\sqrt{u^2+v^2+w^2-d}$ A)True B)False	**A**
55	True or false. In General equation of a sphere $x^2+y^2+z^2+2ux+2vy+2wz+d=0$ its radius is given by $\sqrt{u^2+v^2+w^2}$	**B**

	A)True B)False	
56	True or false. In General equation of a sphere $x^2+y^2+z^2+2ux+2vy+2wz+d=0$ its radius is given by $\sqrt{u^2+v^2-d}$ A)True B)False	**B**
57	True or false. In Diameter form, Equation of a sphere whose end points of diameter are A (x_1, y_1, z_1), B (x_2, y_2, z_2) is given by $(x-x_1)(x-x_2)+(y-y_1)(y-y_2)+(z-z_1)(z-z_2)=0$ A)True B)False	**A**
58	True or false. In Diameter form, Equation of a sphere whose end points of diameter are A (x_1, y_1, z_1), B (x_2, y_2, z_2) is given by $(x-x_1)(x-x_2)+(y-y_1)(y-y_2)+(z-z_1)(z-z_2)=1$ A)True B)False	**B**
59	True or false. Equation of a sphere passing through the four points (x_1, y_1, z_1), (x_2, y_2, z_2), (x_3, y_3, z_3) and (x_4, y_4, z_4). $\begin{vmatrix} x^2+y^2+z^2 & x & y & z & 1 \\ {x_1}^2+{y_1}^2+{z_1}^2 & x_1 & y_1 & z_1 & 1 \\ {x_2}^2+{y_2}^2+{z_2}^2 & x_2 & y_2 & z_2 & 1 \\ {x_3}^2+{y_3}^2+{z_3}^2 & x_3 & y_3 & z_3 & 1 \\ {x_4}^2+{y_4}^2+{z_4}^2 & x_4 & y_4 & z_4 & 1 \end{vmatrix} = 0.$ A)True B)False	**A**
60	True or false. Equation of a sphere passing through the four points (x_1, y_1, z_1), (x_2, y_2, z_2), (x_3, y_3, z_3) and (x_4, y_4, z_4). $\begin{vmatrix} x^2+y^2+z^2 & x & y & z & 1 \\ {x_1}^2+{y_1}^2+{z_1}^2 & x_1 & y_1 & z_1 & 1 \\ {x_2}^2+{y_2}^2+{z_2}^2 & x_2 & y_2 & z_2 & 1 \\ {x_3}^2+{y_3}^2+{z_3}^2 & x_3 & y_3 & z_3 & 1 \\ {x_4}^2+{y_4}^2+{z_4}^2 & x_4 & y_4 & z_4 & 1 \end{vmatrix} = 1.$ A)True B)False	**B**
61	True or false. Equation of a sphere passing through the four points (x_1, y_1, z_1), (x_2, y_2, z_2), (x_3, y_3, z_3) and (x_4, y_4, z_4).	**B**

	$$\begin{vmatrix} x^2+y^2+z^2 & x & y & z & xy \\ {x_1}^2+{y_1}^2+{z_1}^2 & x_1 & y_1 & z_1 & 1 \\ {x_2}^2+{y_2}^2+{z_2}^2 & x_2 & y_2 & z_2 & 1 \\ {x_3}^2+{y_3}^2+{z_3}^2 & x_3 & y_3 & z_3 & 1 \\ {x_4}^2+{y_4}^2+{z_4}^2 & x_4 & y_4 & z_4 & 1 \end{vmatrix} = 0.$$ A)True B)False	
62	True or false. The equation of a tangent Plane at (x_1, y_1, z_1) for the sphere $x^2+y^2+z^2+2ux+2vy+2wz+d=0$is given by $$xx_1+yy_1+zz_1+u(x+x_1)+v(y+y_1)+w(z+z_1)+d=0$$ A)True B)False	**A**
63	True or false. The section of a sphere by a plane is circle therefore S = $x^2+y^2+z^2+2ux+2vy+2wz+d=0$ and P = $ax+by+cz+d=0$ together represents the circle. A)True B)False	**A**
64	True or false. The equation of a tangent Plane at (x_1, y_1, z_1) for the sphere $x^2+y^2+z^2+2ux+2vy+2wz+d=0$is given by $$xx_1+yy_1+zz_1+u(x+x_1)+v(y+y_1)+w(z+z_1)=0$$ A)True B)False	**B**
65	True or false. S = $x^2+y^2+z^2+2ux+2vy+2wz+d=0$ and P = $ax+by+cz+d=0$ together represents the Sphere. A)True B)False	**B**
66	True or false. S = $x^2+y^2+z^2+2ux+2vy+2wz+d=0$ and P = $ax+by+cz+d=0$ together represents the Cone. A)True B)False	**B**
67	True or false. S = $x^2+y^2+z^2+2ux+2vy+2wz+d=0$ and P = $ax+by+cz+d=0$ together represents the Right circular Cylinder . A)True B)False	**B**
68	True or false. S = $x^2+y^2+z^2+2ux+2vy+2wz+d=0$ and P = $ax+by+cz+d=0$ together represents the Enveloping Cylinder .	**B**

	A)True B)False	
69	True or false. S = $x^2 + y^2 + z^2 + 2ux + 2vy + 2wz + d = 0$ and P = $ax + by + cz + d = 0$ together represents the Right Circular Cone. A)True B)False	**B**
70	True or false. S = $x^2 + y^2 + z^2 + 2ux + 2vy + 2wz + d = 0$ and P = $ax + by + cz + d = 0$ together represents the Enveloping Cone. A)True B)False	**B**
71	When the origin is shifted to (1,2) direction of axes remaining same ,new coordinate of (7,5) will be …. A)(6,3) B)(1,2) C)(0,0) D)(70,50)	**A**
72	When the origin is shifted to (1,2) direction of axes remaining same ,new coordinate of (0,5) will be …. A)(6,3) B)(-1,3) C)(0,0) D)(70,50)	**B**
73	True or false. To shift the coordinates of origin to (h,k) replace x by (x+h) and y by (y+k) in the given equation of the curve and get the new equation of curve. A)True B)False	**A**
74	In conic section ,The fixed point in the plane is called …. A)Focus B)Directrix C)Eccentricity D)Parabola	**A**
75	In conic section ,The fixed st. line in the plane is called …. A)Focus B)Directrix C)Eccentricity D)Parabola	**B**
76	Choose the correct option .The radius of sphere $x^2 + y^2 + z^2 + 4x - 6y - 8z - 2 = 0$ A)31 B)$\sqrt{31}$ C)24 D)None of these	**B**
77	Choose the correct option .The coordinates of centre of sphere $x^2 + y^2 + z^2 + 4x - 6y - 8z - 2 = 0$ A)(-2,3,4) B) (2,3,4) C)(0,0,0) D)None of these	**A**
78	Fixed line is called the … of right circular cone. A)Semi vertical angle B) Axis C) generator D)None of these	**B**
79	Constant angle is called the … of right circular cone. A)Semi vertical angle B) Axis C) generator D)None of these	**A**
80	Drs of generators of right circular cylinder whose axis is parallel to Z axis. A)1,1,1 B)1,2,1 C)0,0,1 D) None of these	**C**
81	Drs of generators of right circular cylinder whose axis having equation is x=y=z A)1,1,1 B)1,2,1 C)-1,-2,1 D) None of these	**A**
82	The section of a right circular cone by plane perpendicular to axis is a….. A)parabola B)Hyperbola C)Circle D) None of these	**C**
83	Drs of generators of right circular cylinder whose axis is parallel to X axis.	**B**

	A)1,0,1 B)1,0,0 C)0,0,1 D) None of these	
84	Drs of generators of right circular cylinder whose axis is parallel to Y axis. A)1,0,1 B)1,0,0 C)0,1,0 D) None of these	**C**
85	The section of a right circular cylinder by plane perpendicular to axis is a….. A)parabola B)Hyperbola C)Circle D) None of these	**C**
86	True or false. Enveloping cylinder of the sphere is always right circular cylinder A)True B)False	**A**
87	Radius of enveloping cylinder of the sphere $x^2 + y^2 + z^2 = 9$ is … A)3 B)4 C)5 D) None of these	**A**
88	Radius of enveloping cylinder of the sphere $x^2 + y^2 + z^2 = 25$ is … A)3 B)4 C)5 D) None of these	**C**
89	Drs of generators of right circular cylinder whose axis having equation is $\frac{x-1}{2} = \frac{y-4}{5} = \frac{z-6}{7}$ A)2,5,-7 B)2,5,7 C) 1,4,6 D) None of these	**B**
90	Drs of generators of right circular cylinder whose axis having equation is $\frac{x-1}{22} = \frac{y-4}{55} = \frac{z-6}{77}$ A)2,5,-7 B)2,5,7 C) 1,4,6 D) None of these	**B**
91	Tangent Plane to the sphere $x^2 + y^2 + z^2 = 25$ at (1,2,3) is given by … A)x+2y+3z=25 B)x+y+z=25 C)x+2y+3z=0 D) None of these	**A**
92	Tangent Plane to the sphere $x^2 + y^2 + z^2 - 4x + 2y - 4 = 0$ at (4,-2,2) is given by … A)x+2y+3z=25 B)2x-y+2z-14=0 C)x+2y+3z=0 D) None of these	**B**
93	Tangent Plane to the sphere $x^2 + y^2 + z^2 - 2x - 4y + 2z - 3 = 0$ at (-1,4,-2) is given by … A)x+2y+3z=25 B)2x-2y+z+12=0 C)x+2y+3z=0 D) None of these	**B**
94	Choose the correct option .The radius of sphere $x^2 + y^2 + z^2 + 2x - 2y - 4z - 19 = 0$ A)5 B)$\sqrt{31}$ C)24 D)None of these	**A**
95	Choose the correct option .The Centre of sphere $x^2 + y^2 + z^2 + 2x - 2y - 4z - 19 = 0$ A)(5,0,0) B)(2,2,4) C) (-1,1,2) D)None of these	**C**
96	Choose the correct option .The radius of sphere $x^2 + y^2 + z^2 + 4x - 6y + 2z - 10 = 0$ A)31 B)$\sqrt{24}$ C)24 D)None of these	**B**
97	Choose the correct option .The radius of sphere $x^2 + y^2 + z^2 + 4x - 6y + 2z - 10 = 0$ A)(5,0,0) B)(2,2,4) C) (-2,3,,1) D)None of these	**C**
98	Drs of normal to the plane having equation 2x-y+2z-14=0 at point (4,-2,2) is A)(5,0,0) B)(2,-1,2) C) (-2,3,,1) D)None of these	**B**
99	Drs of normal to the plane having equation 3x-y+12z-14=0 at point (4,-2,2) is A)(5,0,0) B)(3,-1,12) C) (-2,3,,1) D)None of these	**B**
100	Coordinates of the point $(\sqrt{3}, 1)$ after the axes have been rotated through angle $\frac{\pi}{6}$ A)(2,0) B(3.0) C) $(\sqrt{3}, 1)$ D)None of these	**A**