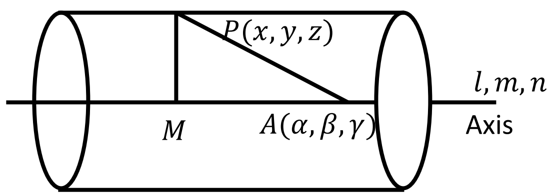
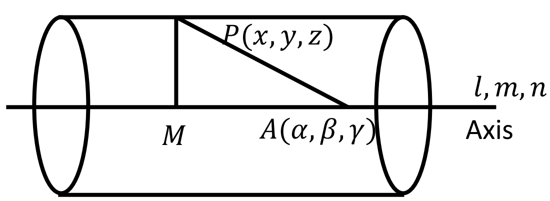
Cone and cylinder

Q. 1	Let L be any line making an angle $\alpha,\ \beta,\ \gamma$ with $x,\ y$ and z axis respectively. Then direction cosines (dc's) of L are				[01]
	A)	$l=\sin\alpha,\ m=\sin\beta\ ,\ n=\sin\gamma$	C)	$l=\sec\alpha,\ m=\sec\beta\ ,\ n=\sec\gamma$	
	B)	$l=\tan\alpha,\ m=\tan\beta\ ,\ n=\tan\gamma$	D)	$l=\cos\alpha,\ m=\cos\beta\ ,\ n=\cos\gamma$	
Ans.	D				
Q. 2	Let L be any line with l,m,n are direction cosines (dc's) of L. And a,b,c are direction ratios (dr's) of L Then l,m,n are.				[01]
	A)	$l=-\frac{a}{\sqrt{a^2+b^2+c^2}},m=\frac{b}{\sqrt{a^2+b^2+c^2}},n=\frac{c}{\sqrt{a^2+b^2+c^2}}$	C)	$l=-\frac{a}{\sqrt{a^2+b^2+c^2}},m=-\frac{b}{\sqrt{a^2+b^2+c^2}},n=\frac{c}{\sqrt{a^2+b^2+c^2}}$	
	B)	$l=\frac{a}{\sqrt{a^2+b^2+c^2}},m=\frac{b}{\sqrt{a^2+b^2+c^2}},n=\frac{c}{\sqrt{a^2+b^2+c^2}}$	D)	$l=-\frac{a}{\sqrt{a^2+b^2+c^2}},m=-\frac{b}{\sqrt{a^2+b^2+c^2}},n=-\frac{c}{\sqrt{a^2+b^2+c^2}}$	
Ans.	C				
Q. 3	Equation of straight line passing through $P(x_1,y_1,z_1)$ and $Q(x_2,y_2,z_2)$ is				[01]
	A)	$\frac{x-x_1}{x_2-x_1}=\frac{y-y_1}{y_2-y_1}=\frac{z-z_1}{z_2-z_1}$	C)	$\frac{z_2-z_1}{x_2-x_1}=\frac{z_2-z_1}{y_2-y_1}=\frac{z-z_1}{z_2-z_1}$	
	B)	$\frac{y_2-y_1}{x_2-x_1}=\frac{y-y_1}{y_2-y_1}=\frac{y_2-y_1}{z_2-z_1}$	D)	$\frac{x-x_1}{x_2-x_1}=\frac{x_2-x_1}{y_2-y_1}=\frac{x_2-x_1}{z_2-z_1}$	
Ans.	A				

Q. 4	Equation of straight line passing through $P(x_1, y_1, z_1)$ and having dcs $l,\ m,\ n$ is				[01]
	A)	$\frac{x+x_1}{l}=\frac{y+y_1}{m}=\frac{z+z_1}{n}=r$	C)	$\frac{x-x_1}{l}=\frac{y-y_1}{m}=\frac{z-z_1}{n}=r$	
	B)	$\frac{x-x_1}{l}=\frac{y+y_1}{m}=\frac{z-z_1}{n}=r$	D)	$\frac{x+x_1}{l}=\frac{y-y_1}{m}=\frac{z+z_1}{n}=r$	
Ans.	C				
Q. 5	Equation of straight line passing through $P(x_1, y_1, z_1)$ and having drs $a,\ b,\ c$ is				[01]
	A)	$\frac{x-x_1}{a}=\frac{y-y_1}{b}=\frac{z-z_1}{c}=k$	C)	$\frac{x-x_1}{a}=\frac{y+y_1}{b}=\frac{z+z_1}{c}=k$	
	B)	$\frac{x+x_1}{a}=\frac{y+y_1}{b}=\frac{z+z_1}{c}=k$	D)	$\frac{x+x_1}{a}=\frac{y-y_1}{b}=\frac{z+z_1}{c}=k$	
Ans.	A				
Q. 6	Perpendicular distance of a point $P(x_1, y_1, z_1)$ from a plane $ax+by+cz+d=0$ is given by				[01]
	A)	$\left\lvert\frac{ax_1+by_1+cz_1+d}{\sqrt{a^2+b^2+c^2}}\right\rvert$	C)	$\left\lvert\frac{ax_1+by_1+cz_1+d}{\sqrt{x_1^2+y_1^2+z_1^2}}\right\rvert$	
	B)	$\left\lvert\frac{ax_1+by_1+cz_1+d}{\sqrt{a^2+b^2+c^2+d^2}}\right\rvert$	D)	None of these	
Ans.	C				
Q. 7	The general equation of cone is				[01]
	A)	$ax^2+by^2+cz^2-2hxy-2fyz-2gzx+2ux+2vy+2wz+d=0$	C)	$ax^2+by^2+cz^2+2hxy+2fyz+2gzx-2ux-2vy-2wz-d=0$	
	B)	$ax^2+by^2+cz^2+2hxy+2fyz+2gzx+2ux+2vy+2wz+d=0$	D)	None of these.	
Ans.	B				
Q. 8	The equation of cone with vertex at origin is				[01]
	A)	$ax^2+by^2+cz^2+2hxy+2fyz+2gzx=0$	C)	$ax^2+by^2+cz^2=0$	
	B)	$ax^2+by^2+cz^2-2hxy-2fyz-2gzx=0$	D)	$ax^2-by^2-cz^2+2hxy+2fyz+2gzx=0$	

Ans.	A				
Q. 9	The equation of right circular cone is				[01]
	A)	$\cos\theta = \dfrac{l(x+\alpha)+m(y+\beta)+n(z+\gamma)}{\sqrt{l^2+m^2+n^2}\sqrt{(x+\alpha)^2+(y+\beta)^2+(z+\gamma)^2}}$	C)	$\cos\theta = \dfrac{l(x-\alpha)-m(y-\beta)-n(z-\gamma)}{\sqrt{l^2-m^2-n^2}\sqrt{(x-\alpha)^2+(y-\beta)^2+(z-\gamma)^2}}$	
	B)	$\cos\theta = \dfrac{l(x-\alpha)+m(y-\beta)+n(z-\gamma)}{\sqrt{l^2+m^2+n^2}\sqrt{(x-\alpha)^2+(y-\beta)^2+(z-\gamma)^2}}$	D)	$\cos\theta = \dfrac{l(x-\alpha)+m(y+\beta)+n(z-\gamma)}{\sqrt{l^2+m^2+n^2}\sqrt{(x-\alpha)^2+(y+\beta)^2+(z-\gamma)^2}}$	
Ans.	B				
Q.10	The equation of right circular cylinder whose radius is r and axis is the line $\frac{x-\alpha}{l}=\frac{y-\beta}{m}=\frac{z-\gamma}{n}$. 				[01]
	A)	$PA^2+PM^2=AM^2$	C)	$PA^2=-PM^2-AM^2$	
	B)	$PA^2=PM^2-AM^2$	D)	$PA^2=PM^2+AM^2$	
Ans.	D				
Q.11	The equation of right circular cylinder whose radius is r and axis is the line $\frac{x-\alpha}{l}=\frac{y-\beta}{m}=\frac{z-\gamma}{n}$. Is $PA^2=PM^2+AM^2$,$AM = Projection\ of\ PA\ on\ axis$ is given by 				
	A)	$\dfrac{l(x+\alpha)+m(y+\beta)+n(z+\gamma)}{\sqrt{l^2+m^2+n^2}}$	C)	$\dfrac{l(x-\alpha)+m(y-\beta)+n(z-\gamma)}{\sqrt{l^2-m^2-n^2}}$	
	B)	$\dfrac{l(x-\alpha)+m(y-\beta)+n(z-\gamma)}{\sqrt{l^2+m^2+n^2}}$	D)	$\dfrac{l(x-\alpha)-m(y-\beta)-n(z-\gamma)}{\sqrt{l^2-m^2-n^2}}$	
Ans.	B				

Q.12	The right circular cone which passes through the point $(2,-2,1)$ with vertex at the origin and axis parallel to the line $\frac{x-2}{5}=\frac{y-1}{1}=\frac{z+2}{1}$ Then the value of semi-vertical angle θ is				[01]
	A)	$\cos^{-1}\left(\frac{1}{\sqrt{3}}\right)$	C)	$\cos^{-1}\left(\frac{1}{\sqrt{2}}\right)$	
	B)	$-\cos^{-1}\left(\frac{1}{\sqrt{3}}\right)$	D)	$\cos^{-1}\left(\frac{1}{\sqrt{5}}\right)$	
Ans.	A				
Q.13	The equation of right circular cylinder of radius 2, whose axis is the line $\frac{x-1}{2}=\frac{y-2}{1}=\frac{z-3}{2}$ is $PA^2=PM^2+AM^2$ Then $AM=Proj^n\ of\ PA\ on\ axis$ is given by				[01]
	A)	$AM=\frac{2(x+1)+1(y+2)+2(z+3)}{\sqrt{2^2+1^2+2^2}}$	C)	$AM=\frac{2(x-1)+1(y-2)+2(z-3)}{\sqrt{2^2+1^2+2^2}}$	
	B)	$AM=\frac{2(x-1)+1(y-2)+2(z-3)}{\sqrt{2^2-1^2-2^2}}$	D)	$AM=\frac{2(x-1)-1(y-2)+2(z-3)}{\sqrt{2^2-1^2+2^2}}$	
Ans.	C				