JEE ADVANCED SUPER 25 REVISION SERIES

3-D GEOMETRY

Ques No.	Question
1 - 23533	**JEE ADVANCED SUPER 25 REVISION SERIES - 3-D GEOMETRY** The equation of the plane passing through the point $(1, 1, 1)$ and perpendicular to the planes $2x + y - 2z = 5$ and $3x - 6y - 2z = 7$, is (A) $14x + 2y + 15z = 3$ (B) $14x + 2y - 15z = 1$ (C) $14x + 2y + 15z = 31$ (D) $14x - 2y + 15z = 27$ Watch Free Video Solution on Doubtnut
2 - 39754	**JEE ADVANCED SUPER 25 REVISION SERIES - 3-D GEOMETRY** Find the equation of the plane containing the lines $\frac{x-5}{4} = \frac{y-7}{4} = \frac{z+3}{-5} and \frac{x-8}{7} = \frac{y-4}{1} = \frac{z-5}{3}$. Watch Free Video Solution on Doubtnut
3 - 39794	**JEE ADVANCED SUPER 25 REVISION SERIES - 3-D GEOMETRY** Find the locus of a point, the sum of squares of whose distance from the planes $x - z = 0, x - 2y + z = 0$ and $x + y + z = 0$ is 36 Watch Free Video Solution on Doubtnut
4 - 39841	**JEE ADVANCED SUPER 25 REVISION SERIES - 3-D GEOMETRY** Find the direction ratios of orthogonal projection of line $\frac{x-1}{1} = \frac{y+1}{-2} = \frac{z-2}{3}$ in the plane $x - y + 2z - 3 = 0$. also find the direction ratios of the image of the line in the plane. Watch Free Video Solution on Doubtnut

5 - 39857

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Find the vector equation of the line passing through $(1, 2, 3)$ and parallel to the planes $vexr.\left(\hat{i}-\hat{j}+2\hat{k}\right)$ and $\vec{r}.\left(3\hat{i}+\hat{j}+\hat{k}\right)=6$

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6 - 39864

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Find the equation of a line which passes through the point $(2, 3, 4)$ and which has equal intercepts on the axes.

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7 - 41198

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The direction ratios of a normal to the plane through $(1, 0, 0) and (0, 1, 0)$, which makes and angle of $\frac{\pi}{4}$ with the plane $x+y=3,$ are a. $\langle 1, \sqrt{2}, 1\rangle$ b. $\langle 1, 1, \sqrt{2}\rangle$ c. $\langle 1, 1, 2\rangle$ d. $\langle \sqrt{2}, 1, 1\rangle$

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8 - 41219

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The value of k such that $\frac{x-4}{1}=\frac{y-2}{1}=\frac{z-k}{2}$ lies in the plane $2x-4y+z=7$ is a. 7 b. -7 c. no real value d. 4

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9 - 41265

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If a line makes an angle of $\frac{\pi}{4}$ with the positive direction of each of x-axis and y-axis, then the angel that the line makes with the positive direction of the z-axis is a. $\frac{\pi}{3}$ b. $\frac{\pi}{4}$ c. $\frac{\pi}{2}$ d. $\frac{\pi}{6}$

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10 - 41299

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The length of the perpendicular form the origin to the plane passing through the point a and containing the line

	$\vec{r} = \vec{b} + \lambda \vec{c}$ is a. $\dfrac{\left[\vec{a}\,\vec{b}\,\vec{c}\right]}{\left\lvert \vec{a} \times \vec{b} + \vec{b} \times \vec{c} + \vec{c} \times \vec{a} \right\rvert}$ b. $\dfrac{\left[\vec{a}\,\vec{b}\,\vec{c}\right]}{\left\lvert \vec{a} \times \vec{b} + \vec{b} \times \vec{c} \right\rvert}$ c. $\dfrac{\left[\vec{a}\,\vec{b}\,\vec{c}\right]}{\left\lvert \vec{b} \times \vec{c} + \vec{c} \times \vec{a} \right\rvert}$ d. $\dfrac{\left[\vec{a}\,\vec{b}\,\vec{c}\right]}{\left\lvert \vec{c} \times \vec{a} + \vec{a} \times \vec{b} \right\rvert}$ Watch Free Video Solution on Doubtnut
11 - 41342	**JEE ADVANCED SUPER 25 REVISION SERIES - 3-D GEOMETRY** Show that the straight lines whose direction cosines are given by the equations $al + bm + cn = 0$ and $ul^2 + zm^2 = vn^2 + wn^2 = 0$ are parallel or perpendicular as $\dfrac{a^2}{u} + \dfrac{b^2}{v} + \dfrac{c^2}{w} = 0$ or $a^2(v+w) + b^2(w+u) + c^2(u+v) = 0$ Watch Free Video Solution on Doubtnut
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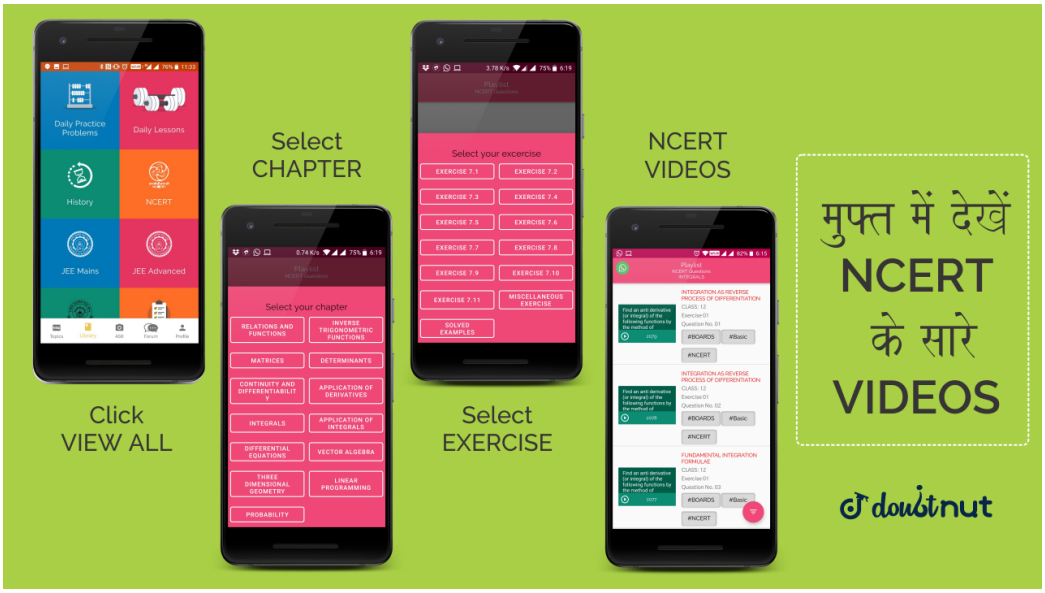
12 - 41353	**JEE ADVANCED SUPER 25 REVISION SERIES - 3-D GEOMETRY** The shortest distance from the plane $12x + 4y + 3z = 327$ to the sphere $x^2 + y^2 + z^2 + 4x - 2y - 6z = 155$ is a. 39 b. 26 c. $41 - \dfrac{4}{13}$ d. 13 Watch Free Video Solution on Doubtnut
13 - 181471	**JEE ADVANCED SUPER 25 REVISION SERIES - 3-D GEOMETRY** In R', consider the planes $P_1, y = 0$ and $P_2 : x + z = 1$. Let P_3, be a plane, different from P_1, and P_2, which passes through the intersection of P_1, and _ 2P If the distance of the point $(0, 1, 0)$ from P_3, is 1 and the distance of a point (α, β, γ) from P_3 is 2, then which of the following relation is (are) true ? Watch Free Video Solution on Doubtnut
14 - 181473	**JEE ADVANCED SUPER 25 REVISION SERIES - 3-D GEOMETRY** let L be a straight line passing through the origin. Suppose that all the points on L are at a constant distance from the two planes $P_1 : x + 2y - z + 1 = 0$ and $P_2 : 2x - y + z - 1 = 0$, Let M be the locus of the feet of the perpendiculars drawn from the points on L to the plane P_1. Which of the following points lie(s) on M? Watch Free Video Solution on Doubtnut

15 - 182615	**JEE ADVANCED SUPER 25 REVISION SERIES - 3-D GEOMETRY** Perpendiculars are drawn from points on the line $\frac{x+2}{2}=\frac{y+1}{-1}=\frac{z}{3}$ to the plane x + y + z=3 The feet of perpendiculars lie on the line Watch Free Video Solution on Doubtnut
doubtnut पढ़ना हुआ आसान	
16 - 182619	**JEE ADVANCED SUPER 25 REVISION SERIES - 3-D GEOMETRY** For a>b>c>0, the distance between (1,1) and point of intersection of the lines ax + by + c = 0 and bx + ay + c = 0 is less than$2\sqrt{2}$, Then Watch Free Video Solution on Doubtnut
17 - 182628	**JEE ADVANCED SUPER 25 REVISION SERIES - 3-D GEOMETRY** From a point $P(\lambda,\lambda,\lambda)$, perpendicular PQ and PR are drawn respectively on the lines $y=x, z=1$ and $y=-x, z=-1$.If P is such that $\angle QPR$ is a right angle, then the possible value(s) of λ is/(are) Watch Free Video Solution on Doubtnut
18 - 182638	**JEE ADVANCED SUPER 25 REVISION SERIES - 3-D GEOMETRY** A line l passing through the origin is perpendicular to the lines $l_1:(3+t)\hat{i}+(-1+2t)\hat{j}+(4+2t)\hat{k}, \infty<t<\infty, l_2:(3+s)\hat{i}+(3+2s)\hat{j}+(2+s)\hat{k}, \infty<t<\infty$ then the coordinates of the point on l_2 at a distance of $\sqrt{17}$ from the point of intersection of $l \& l_1$ is/are: Watch Free Video Solution on Doubtnut
19 - 182755	**JEE ADVANCED SUPER 25 REVISION SERIES - 3-D GEOMETRY** The point p is the intersection of the straight line joining the points $Q(2,3,5)$ and $R(1,-1,4)$ with the plane $5x-4y-z=1$. If S is the foot of the perpendicular drawn from the point $T(2,1,4)$ to QR, then the length of the line segment PS is: Watch Free Video Solution on Doubtnut
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20 - 182804

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The equation of a plane passing through the line of intersection of the planes $x+2y+3z=2$ and $x-y+z=3$ and at a distance $\frac{2}{\sqrt{3}}$ from the point $(3,1,-1)$ is

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21 - 182891

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Equation of the plane containing the straight line $\frac{x}{2}=\frac{y}{3}=\frac{z}{4}$ and perpendicular to the plane containing the straight lines $\frac{x}{2}=\frac{y}{4}=\frac{z}{2}$ and $\frac{x}{4}=\frac{y}{2}=\frac{z}{3}$ is

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22 - 182948

JEE ADVANCED SUPER 25 REVISION SERIES - 3-D GEOMETRY

If the distance between the plane $Ax-2y+z=d.$ and the plane containing the lies $\frac{x+1}{2}=\frac{y-2}{3}=\frac{z-3}{4}$ and $\frac{x-2}{3}=\frac{4-3}{4}=\frac{z-4}{5}$ is $\sqrt{6},$ then $|d|$ is

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23 - 183508

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Consider three planes $P_1: x-y+z=1,\ P_2: x+y-z=-1$ and $P_3: x-3y+3z=2$ Let L_1, L_2 and L_3 be the lines of intersection of the planes P_2 and P_3, P_3 and P_1 and P_1 and P_2 respectively.Statement 1: At least two of the lines L_1, L_2 and L_3 are non-parallel The three planes do not have a common point

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24 - 183632

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Consider the line $L_1 : \frac{x+1}{3} = \frac{y+2}{1} = \frac{z+1}{2}, L_2 : \frac{x-2}{1} = \frac{y+2}{2} = \frac{z-3}{3}$ The shortest distance between L_1 and L_2 is

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25 - 184986

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A line with positive direction cosines passes through the point $P(2, -1, 2)$ and makes equal angles with the coordinate axes. The line meets the plane $2x + y + z = 9$ at point Q. The length of the line segment PQ equals

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