1. If the point $P\left(\frac{3a}{2}, 1\right)$ lies between the two different lines $x+y=a$ and $x+y=2a$, then the least integral value of $|a|$ is equal to
(1) 1
(2) 2
(3) 3
(4) 4

2. The set of all possible values of θ in the interval $(0, \pi)$ for which the points $(1,\ 2)$ and $(\sin\theta,\ \cos\theta)$ lie on the same side of the line $x+y=1$ is?
(1) $\left(0, \frac{\pi}{2}\right)$
(2) $\left(\frac{\pi}{4}, \frac{3\pi}{4}\right)$
(3) $\left(0, \frac{3\pi}{4}\right)$
(4) $\left(0, \frac{\pi}{4}\right)$

3. If the points $(-2,0), \left(-1, \frac{1}{\sqrt{3}}\right)$ and $(\cos\theta, \sin\theta)$ are collinear, then the number of values of $\theta \in [0, 2\pi]$ is
(1) 0
(2) 1
(3) 2
(4) infinite

4. If a straight line passing through the point $P(-3,\ 4)$ is such that its intercepted portion between the coordinate axes is bisected at P, then its equation is :
(1) $4x+3y=0$
(2) $4x-3y+24=0$
(3) $3x-4y+25=0$
(4) $x-y+7=0$

5. The equations of the lines passing through the point $(1, 0)$ and at a distance $\frac{\sqrt{3}}{2}$ from the origin are
(1) $\sqrt{3}x+y-\sqrt{3}=0,\ \sqrt{3}x-y-\sqrt{3}=0$
(2) $\sqrt{3}x+y+\sqrt{3}=0,\ \sqrt{3}x-y+\sqrt{3}=0$
(3) $x+\sqrt{3}y-\sqrt{3}=0,\ x-\sqrt{3}y-\sqrt{3}=0$
(4) None of the above

6. The distance of the point $(3, 5)$ from $2x+3y-14=0$ measured parallel to $x-2y=1$ is
(1) $\frac{7}{\sqrt{5}}$
(2) $\frac{7}{\sqrt{13}}$
(3) $\sqrt{5}$
(4) $\sqrt{13}$

7. A straight line L through the point (3, -2) is inclined at an angle 60° to the line $\sqrt{3}\mathrm{x}+\mathrm{y}=1$. If L also intersects the x-axis, then the equation of L is
(1) $\mathrm{y}+\sqrt{3}\mathrm{x}+2-3\sqrt{3}=0$
(2) $\mathrm{y}-\sqrt{3}\mathrm{x}+2+3\sqrt{3}=0$
(3) $\sqrt{3}\mathrm{y}-\mathrm{x}+3+2\sqrt{3}=0$
(4) $\sqrt{3}\mathrm{y}+\mathrm{x}-3+2\sqrt{3}=0$

8. Slope of a line passing through $P(2,\ 3)$ and intersecting the line $x+y=7$ at a distance of 4 units from P, is
(1) $\frac{\sqrt{7}-1}{\sqrt{7}+1}$
(2) $\frac{1-\sqrt{7}}{1+\sqrt{7}}$
(3) $\frac{\sqrt{5}-1}{\sqrt{5}+1}$
(4) $\frac{1-\sqrt{5}}{1+\sqrt{5}}$

9. The perpendicular bisector of the line segment joining $P(1,4)$ and $Q(k,3)$ has y-intercept - 4. Then a possible value of k is
(1) -4
(2) 1
(3) 2
(4) -2

10. Suppose that the points $(h,\ k)$, $(1,\ 2)$ and $(-3,\ 4)$ lie on the line L_1. If a line L_2 passing through the points $(h,\ k)$ and $(4,\ 3)$ is perpendicular to L_1, then $\frac{k}{h}$ equals:
(1) $-\frac{1}{7}$
(2) 3
(3) 0
(4) $\frac{1}{3}$