1. For any two vectors $\overrightarrow{a}$ and $\overrightarrow{b}$, which of the following statements is always true?
   (a) $\overrightarrow{a} \cdot \overrightarrow{b} \geq |\overrightarrow{a}||\overrightarrow{b}|$
   (b) $\overrightarrow{a} \cdot \overrightarrow{b} = |\overrightarrow{a}||\overrightarrow{b}|$
   (c) $\overrightarrow{a} \cdot \overrightarrow{b} \leq |\overrightarrow{a}||\overrightarrow{b}|$
   (d) $\overrightarrow{a} \cdot \overrightarrow{b} < |\overrightarrow{a}||\overrightarrow{b}|$

2. The unit vector perpendicular to both vectors $\hat{i} + \hat{k}$ and $\hat{i} - \hat{k}$ is:
   (a) $2\hat{j}$
   (b) $\hat{j}$
   (c) $\frac{\hat{i}-\hat{k}}{\sqrt{2}}$
   (d) $\frac{\hat{i}+\hat{k}}{\sqrt{2}}$

3. Direction ratios of a vector parallel to line $\frac{x-1}{2} = -y = \frac{2z+1}{6}$ are :
   (a) $2, -1, 6$
   (b) $2, 1, 6$
   (c) $2, 1, 3$
   (d) $2, -1, 3$

4. Assertion (A): For two non-zero vectors $\overrightarrow{a}$ and $\overrightarrow{b}$, $\overrightarrow{a} \cdot \overrightarrow{b} = \overrightarrow{b} \cdot \overrightarrow{a}$
   Reason (R): For two non-zero vectors $\overrightarrow{a}$ and $\overrightarrow{b}$, $\overrightarrow{a} \times \overrightarrow{b} = \overrightarrow{b} \times \overrightarrow{a}$
   (a) Both Assertion (A) and Reason (R) are true, and Reason (R) is the correct explaination of Assertion (A).
   (b) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explaination of Assertion (A)
   (c) Assertion (A) is true, but Reason (R) is false
   (d) Assertion (A) is false, but Reason (R) is true

5. The position vectors of vertices of $\triangle ABC$ are $A(2\hat{i}-\hat{j}+\hat{k})$, $B(\hat{i}-3\hat{j}-5\hat{k})$ and $C(3\hat{i} - 4\hat{j} - 4\hat{k})$. Find all the angles of $\triangle ABC$.