Hand your completed quiz in before the due date. Do not forget to write down your **name and student ID number**. Marks will be awarded for this quiz based on the clarity of your answers. The marker will pay close attention to the logic of your answers. **Please show all your working.**

Q1. Find parametric equations for the line of intersection of the given planes.

(a) \(7x - 2y + 3z = -2\) and \(-3x + y + 2z + 5 = 0\).

(b) \(3x + 3y - 5z = 0\) and \(y = 0\).

Q2. Show that the line \(x = 0, y = t, z = t, t \in \mathbb{R}\)

(a) lies in the plane \(6x + 4y - 4z = 0\).

(b) is parallel to and below the plane \(5x - 3y + 3z = 1\).

(c) is parallel to and above the place \(6x + 2y - 2z = 3\).

Q3. Find an equation for the plane through \((-2, 1, 7)\) that is perpendicular to the line \(x - 4 = 2t, y + 2 = 3t, z = -5t\).

Q4. Find an equation of

(a) the \(xy\)-plane.          (b) the \(xz\)-plane.          (c) the \(yz\)-plane.

Q5. Find an equation for the plane that passes through the origin and is parallel to the plane \(7x + 4y - 2z + 3 = 0\).

Q6. Find an equation for the plane that contains the line \(x = -1 + 3t, y = 5 + 2t, z = 2 - t\) and is perpendicular to the plane \(2x - 4y + 2z = 9\).

Q7. Show that the points \((-1, -2, -3), (-2, 0, 1), (-4, -1, -1),\) and \((2, 0, 1)\) lie in the same plane.