Take Home Assignment 2 GE1358/MA1501

For each of the following questions, write down your solution with details of steps. Marks will not be given if only final answers are provided.

Q1. [20 Marks] Find the shortest distance between the origin and the straight line $ax + by + c = 0$.

Q2. [15 Marks] Find the equation of the plane passing through the points $(2, -1, 3)$ and perpendicular to the line below

$$\frac{(x+1)}{2} = \frac{(y-1)}{3} = \frac{(z-0)}{-4}$$

Q3. [20 Marks] Find the equation of plane through the points $(0, 1, 1), (1, 0, 1)$ and $(1, 1, 0)$.

Q4. [20 Marks] Find the distance between the point $A(3, -1, 4)$ and the line: $x = -2 + 3t$, $y = -2t$, $z = 1 + 4t$.

Q5. [10 Marks] Find the parametric equations for the line through the point $(1, -2, 4)$ and parallel to $i + j - k$.

Q6. [15 Marks]

(a) Find parametric equations of the line passing through the points $P_0(2, 4, -3)$ and $P_1(3, -1, 1)$.

(b) At what point does this line cross the yz-plane.

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