MCE4101 Introduction to Robotics
Quiz1 (5%) –SET 10

Name……………………………………………….ID…………………………..
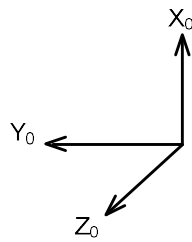**Date: 9 July 2020 (9.20-10.20)**
Note:
1. OPEN BOOK.
2. 25 Marks equivalent to 5%.

1. (25 Marks). The original frame is given. The following transformation steps for fixed frames are

   i. Rotate -90° in the current x axis then
   ii. Translate 2 in the current z axis then
   iii. Rotate 90° in the current y axis then
   iv. Translate -2 in the current x axis then

   a. (10) Find the T_4^0 transformation matrix.

   b. (5) If a point is fixed on the z axis at (0,0,1), obtain the coordinate P_4 with reference to origin.

   c. (10) Plot all the transformation frames and mark P_4 location with reference to origin

2. (25 Marks). The original frame is given. The following transformation steps for fixed frames are

      i. Rotate -90° in the fixed x axis then
      ii. Translate 2 in the fixed z axis then
      iii. Rotate 90° in the fixed y axis then
      iv. Translate -2 in the fixed x axis then

   a. (10) Find the T_4^0 transformation matrix.

   b. (5) If a point is fixed on the z axis at (0,0,1), obtain the coordinate P_4 with reference to origin.

   c. (10) Plot all the transformation frames and mark P_4 location with reference to origin