# MCE4101 Introduction to Robotics
## Quiz1 (5%) –SET 14

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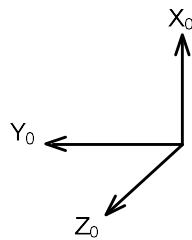**Date: 9 July 2020 (9.20-10.20)**
*Note:*
*1. OPEN BOOK.*
*2. 25 Marks equivalent to 5%.*

1. (25 Marks). The original frame is given. The following transformation steps for fixed frames are
   i. Rotate 90° in the current y 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 y 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