Pop Quiz (Week 4) [15 mins] – 15 pts

Name:_____Student ID: _____

Please show your work for partial credits.

1) **[1]** The dimension of matrices that can represent all 3D linear transformations is _____

2) **[2+1=3]** What are the two fundamental rigid body transformations? How many degrees of freedom do they have?

3) **[3+3=6]**Write the 4x4 matrix for following concatenated transformations.
   a) $R_z(45^o)$ T(1,2,1)

   b) S(1,2,1) $R_z(45^o)$

4) **[5]** Consider a view set up where the eye is located at the origin, the normal to the image plane is given by the vector (0, 1,1), and the view-up vector is given by (1, 1, 0). Find the view transformation.