Pop Quiz 4 [10 mins]

Name:

Student ID:

1) **[1]** The intrinsic parameter matrix of a camera is a
   a) Lower Triangular matrix
   b) Upper Triangular matrix
   c) Symmetric matrix

2) **[2]** Which of the following is true for fundamental matrix?
   a) It is a rank 2 matrix
   b) It is a rank 3 matrix
   c) It applies to two cameras in a stereo set up
   d) It applies to two cameras looking at a plane
   e) It applies to two cameras which have same center of projection
   f) It maps a point in one image to a point in another image
   g) It maps a point in one image to a line in another image
   h) It reduces the search space for correspondences from 2D to 1D

3) **[2]** Which of the following is true for a homography matrix?
   a) It is a rank 2 matrix
   b) It is a rank 3 matrix
   c) It applies to two cameras in a stereo set up
   d) It applies to two cameras looking at a plane
   e) It applies to two cameras which have same center of projection
   f) It maps a point in one image to a point in another image
   g) It maps a point in one image to a line in another image
   h) It reduces the search space for correspondences from 2D to 1D

4) **[1]** Rectification is a process of
   a) Making the image plane of two cameras in a stereo rig parallel to each other
   b) Making the image plane of two cameras in a stereo rig perpendicular to each other
   c) Make the COP of the two cameras in a stereo rig to be the same

5) **[1]** The depth at which the image of an object points falls on corresponding points in the two eyes is called horopter.

6) **[1.5]** Consider the situation where two camera positions are on the same Z axis, but at different depth. When considering the optical flow across these two images which of the following are true.

a) The epipole of these two images coincide on the image plane
b) The flow for points at closer depth is larger than those at farther depth
c) The epipolar lines of these images are parallel to the Y axis
d) The epipoles of these two images are at infinity
e) All epipolar lines emerge from the focus of expansion
f) The correspondences lie on the same raster line in both the images
g) The flow for points at farther depth is larger than those at closer depth

7) **[1.5]** Consider two rectified images. Which of the following are true for these images.
a) The epipole of these two images coincide on the image plane
b) The flow for points at closer depth is larger than those at farther depth
c) The epipolar lines of these images are parallel to the Y axis
d) The epipoles of these two images are at infinity
e) All epipolar lines emerge from focus of expansion
f) The correspondences lie on the same raster line in both the images
g) The flow for points at farther depth is larger than those at closer depth