1. (10p) You are given a camera with adjustable focal length. Describe how it could be used for size constancy; i.e., to make different objects appear to have the same image sizes.

2. (10p) What is normalized cross-correlation? Give a formula and describe its meaning.

3. (10p) Discuss the localization-detection tradeoff in edge and corner detection.

4. (30p) What is chamfer matching? How would you use it? How is it different from the Generalized Hough Transform?

5. (40p) What are all possible images of a pair of 3D lines. Discuss both intersecting and parallel lines. What can be determined from images of these lines?

6. (10p) You are given a calibrated stereo pair of parallel cameras mounted on a vehicle moving along a known 3D plane (you know the equation of the plane). Is it possible to detect obstacles from images?