1. Please answer the following questions for camera calibration in photogrammetry. (15%):

   a. Please describe the details of interior orientation parameters.

   b. Please provide a procedure of camera calibration for a digital camera. How to evaluate the robustness of the calibrated results?

2. Please provide detailed answers to the questions below. (15%)

   a. For an image triplet, please tell the total number of relative orientation parameters and the reason.

   b. Please give a graph to illustrate the epipolar geometry and describe the utility of an epipolar line regarding stereo image matching.

   c. Please use the algebra to show the point transformation from a model coordinate system to the global coordinate system by using absolute orientation parameters, and please define each symbol.

3. Image classification is an essential and important process in satellite remote sensing. Please compare the differences between supervised and unsupervised classifications. (15%)

4. Please explain the following indices with a numerical example: producer accuracy, user accuracy, overall accuracy, kappa coefficients. (20%)

5. Digital image matching is an essential component in image pose estimation, 3D modeling, or SfM. Regarding area-based methods (i.g., NCC) and local feature-based methods (i.g., SIFT), please try to describe their benefits and drawbacks in data processing theoretically. (15%)

6. Please explain what is DSM, DEM, and DTM standing for, and provide a practical example in Remote Sensing for each data format. (10%)

7. Please explain the meaning and unit of radiance and reflectance. (10%)