Remote Sensing

Time: 45 minutes   *Total Marks: 25*

(Write answer on white sheet, scan, submit as RollNo-Exam1.Pdf by 11.15 am in the Portal)

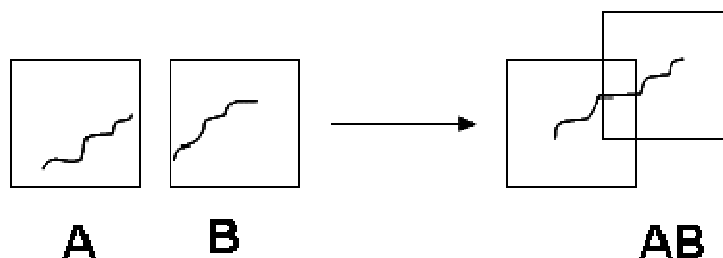I. Answer in one word / one sentence (5 marks / 5 minutes)
1. ------ defines the standard values of ellipsoid and geoid
2. -----filter is used in the pre-processing of satellite image to extract road network
3. ------ is the geometric distortion that occurs when the aircraft or spacecraft fuselage maintains directional stability but the wings move up or down.
4. Expand WGS84
5. Which of the following effect do NOT result in geometrical errors/distortion in remote sensing images?
   (a) Earth curvature (b) Earth rotation (c) Atmospheric absorption
   (d) Sensor platform motion (e) Local topography

II. Answer in two/four sentences (12 Marks / 18 minutes)
1. A researcher procured Landsat TM image and created two composite images with band combinations (i) Red, Green and Blue (ii) SWIR, NIR and Red. For what applications he will use those individual composite images
2. A particular image has been modified by (i) linear contrast enhancement and (ii) by histogram equalisation. Suppose you have the digital image data available for both the original image and the contrast modified versions. By inspecting the data (or histograms) describe how you would determine quantitatively which technique was used in each case.
3. Explain how haze compensation can be performed on MSS data?

III. Answer the following (8 Marks/ 15 minutes)
   1. An image analyst procured two images A and B with a size of 4000 pixels by 4000 lines each, having different coordinate system. The images are of the same region, with a partial overlap, showing different objects like mountains with forest, agriculture land and a river stream. He is interested in generating a combined image utilising the two images (A&B) and matching the features correctly. List and explain all the steps and techniques required for the generation of the final output as below.

(Approx. 38 minutes for writing and rest of the time for scanning and uploading)