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School of Environmental Technology
Federal University of Technology
Minna, Nigeria

SVG518: Photogrammetry and Remote Sensing II

First Semester Examination, 2018/2019 Session

DURATION: 2 Hours.

Instructions: Answer Question 1 and any other Two

1a. An area 30 km long in the north-south direction and 24 km in the east-west direction is to be photographed with a lens having 30 cm focal length for the purpose of constructing a mosaic. The photograph size is 20 cm x 20cm. The average scale is to be 1: 12,000 effective at an elevation of 400 m above datum. Overlap is to be at least 60% and the side lap is to be at least 30%. An intervalometer will be used to control the interval between exposures. The ground speed of the aircraft will be maintained at 200 km per hour. The flight lines are to be laid out in a north-south direction on an existing map having a scale of 1:60,000. The two outer flight lines are to coincide with the east and west boundaries of the area. Determine the data for the flight plan.

1b. List 5 importance of ensuring adequate overlap in photogrammetric mapping

2a. Given a LandsAT image of 30m spatial resolution, and with mild cloud cover, describe the necessary operations you will carry out in order to produce a land cover map from it, stating the algorithms you will be using at each stage of the operation and why.

2b. Write short notes on Satellite Remote Sensing sources of elevation data.

2c. Write short notes supervised and unsupervised classification, highlighting their merits, demerits and classification of their algorithms.

3a. The University has commissioned you to carry out the mapping of the entire campus and as an expert in photogrammetry and remote sensing, you have decided to adopt photogrammetric means for the mapping, describe how you will execute this project from project initiation to deliverables.

3b. What are the factors to be considered in photogrammetric cost estimation?

3c. What are the principal components of a typical direct optical projection stereoplotter?

4a. Write short notes on the methods of establishing photocontrols.

4b. Highlight the factors that determine the number of ground control points required for a photogrammetric project.

4ci. List 5 elements of interior orientation that can be determined through camera calibration?

4cii. Highlight some image characteristics that aids image interpretation.