

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)**

**CLASS: MSc
BRANCH: GEOINFORMATICS**

**SEMESTER : III
SESSION : MO/2024**

SUBJECT: GI603 AERIAL, SATELLITE UAV BASED PHOTOGRAMMETRY AND APPLICATIONS

TIME: 3 Hours

FULL MARKS: 50

INSTRUCTIONS:

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
 2. Attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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| Q.1(a) | Illustrate, in Detail with diagram, various drainage patterns one can observe in the Satellite Images. | [5] | CO4 | BL4 |
| Q.1(b) | Enlist the major factors that decide flight planning over the Himalayan Range | [5] | CO4 | BL3 |
| Q.2(a) | Classify aerial photographs based on its axis and angle of coverage. | [3] | CO2 | BL2 |
| Q.2(b) | (i) Can you briefly discuss the Historic Developments of Photogrammetry? (ii) How is parallax measured from a stereopair? Explain the parallax equation. | [3] [4] | CO1 CO2 | BL1 BL2 |
| Q.3(a) | (i) You are given a single aerial photo, and asked to find out the scale of the photo. How will you find out? Assume two situations: if you have a toposheet of the same area, and If you don't have the toposheet of the same area. | [3] | CO2 | BL5 |
| Q.3(b) | (ii) What will be effect of Elevation of the ground or object on the aerial photo? Derive the height of an object using 2 overlapping aerial photos using analytical method. | [2] [5] | CO3 | BL6 |
| Q.4(a) | You are given an aerial photo of scale 1:1000. Assume 2 independent situations as given below and Solv. (i) What will be the optimal DPI for converting the same photo into digital photo. Rule of thumb to be considered is size of one pixel would be 0.25mm of the scale. (ii) What will be the Spatial resolution if the total number of pixels in the digital file is 2000. | [5] | CO2 | BL5 |
| Q.4(b) | (i) Explain interior and exterior orientation processes in the Digital Photogrammetry? (ii) What are the different Stereo Data Acquisition possibilities using Satellite? | [5] | CO2 | BL2 |
| Q.5(a) | What are the challenges in surveying and mapping mines? Discuss with special reference with the role of UAV's in the above. | [5] | CO4 | BL4 |
| Q.5(b) | Review any one software available to process the images obtained from UAV sensors. | [5] | CO3 | BL3 |

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