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

CLASS: M.Tech/PRE-PHD **SEMESTER : II/NA**
BRANCH: REMOTE SENSING **SESSION : SP/19**

SUBJECT: RS511 AERIAL AND SATELLITE PHOTOGRAMMETRY & IMAGE INTERPRETATION
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.

Q.1(a) You are asked to help the Ranchi Municipality for understanding housing quality in the city. Can you apply you Air Photo interpretation methods for this purpose, and explain in detail? [5]

Q.1(b) Write the importance of Airphoto " Interpretation Key". Give a real world example wherein *elimination key* may be used in air photo interpretation. [5]

Q.2(a) Explain the importance of having Overlapping photographs in photogrammetry? What is the minimum overlap required in a stereo pair? For a format size of 9 cm x 9 cm aerial photograph, having an area of coverage of 60° at a height of 1000m, calculate the minimum overlap area required. [5]

Q.2(b) Explain the concept of Tilt displacement and write its equation when the point does not lie on the principle line. Calculate the height of a chimney on an aerial photogeaph with the given data: Distance of the chimney from the Isocentre 3 cm; chimney makes an angle from the Isocentre = 5°, Tilt angle = 3°; focal length 115 mm. Format size 23 cm. [5]

Q.3(a) You are given two adjacent aerial photographs taken from aero plane. You are asked to explain to PG students on "how to derive height Analytically from these two photos". [5]

Q.3(b) Explain these terminologies with diagram: Space Resection, Aero-Triangulation, Camera Rotation. [5]

Q.4(a) Why ortho-rectification is required in Aerial Photogrammetry? Explain in detail about ortho-rectification process. [5]

Q.4(b) You are given an aerial photograph of size 20cm x 20cm having a scale of 1:5000. You are asked to scan the photo at 1000 DPI. What will the pixel size (in meters) after the scanning? [5]

Q.5(a) You are asked to create a Digital Elevation Map (DEM) of BIT campus within 2 days. How will you carry out this using UAV? [5]

Q.5(b) What are the limitations of using UAV for topographic survey? How can you overcome these limitations? [5]

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