

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

**CLASS: M TECH
BRANCH: REMOTE SENSING**

**SEMESTER : I
SESSION : MO/2022**

**SUBJECT: RS511 AERIAL, SATELLITE, UAV BASED PHOTOGRAMMETRY & APPLICATIONS
TIME: 3:00 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) How is an aerial image interpreted? Explain with respect to development of interpretation keys. [CO1 BL2] [3]
- Q.1(b) How is Coastal monitoring achieved with the help of aerial photographs? Explain the image interpretation concepts for the same. [CO1 BL1] [3]
- Q.1(c) Illustrate Folds, faults and Joints and explain their field characters.[CO1 BL1] [4]
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- Q.2(a) From traditional photogrammetry there is a shift towards digital photogrammetry. Trace the important historical landmarks in this respect. [CO1 BL2] [2]
- Q.2(b) Why is a positive plane required when it does not exist in reality? Give Reasons. [CO2 BL4] [2]
- Q.2(c) An area of 10x20 square miles is to be photographed with the 6 inches focal length camera. Given forward overlap to be 60% and lateral overlap to be 30%. Format of the aerial photograph is 9 inches x 9 inches. At a height of 10000 feet. Calculate the number of photographs when the flight line is parallel to the
i) length of the area
ii) width of the area
[CO2 BL4] [6]
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- Q.3(a) Is the Scale constant in Aerial Photo? Explain.[CO4 BL4] [2]
- Q.3(b) You are given two aerial photos, the position of an object on the left photo is (5,6) and the position of the same object on the right photo is (-5,6). What is the Parallax? [CO2 BL3] [3]
- Q.3(c) You are asked to take an aerial photos over a study region having varying undulation. Derive the equation for estimating the Height of an object using 2 aerial photos. [CO3 BL3] [5]
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- Q4 Explain Following (using diagram/equations/texts) [BL2]
- Q.4(a) Satellite based Image Acquisition possibilities for Photogrammetric applications [CO4] [2]
- Q.4(b) Differential Rectification [CO4] [2]
- Q.4(c) RPC [CO4] [2]
- Q.4(d) Aerial Triangulation [CO2] [2]
- Q.4(e) Omega, Phi and Kappa [CO3] [2]
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- Q.5(a) Explain the role of UAV in any one field of terrain mapping. [CO5 BL3] [5]
- Q.5(b) Evaluate the capability of any one digital photogrammetry software that you may have used [CO3 BL5] [5]

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