

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

**CLASS: M.Sc.
BRANCH: Remote Sensing**

**SEMESTER : VII
SESSION :MO/2023**

SUBJECT: GI603 AERIAL, SATELLITE, UAV BASED PHOTOGRAMMETRY & APPLICATION
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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		CO	BL
Q.1(a)	Write down the important milestones in the historic development of photogrammetry.	[5] [CO1]	[BL1]
Q.1(b)	Write a note about flight planning keeping in view the impact considerations for a successful flight for any given mountainous terrain.	[5] [CO4]	[BL3]
Q.2(a)	Classify aerial photographs according to the camera axis.	[2] [CO1]	[BL2]
Q.2(b)	How are aerial photos projected - Discuss the geometric projections.	[2] [CO2]	[BL4]
Q.2(c)	Calculate the number of photos for 10 x 20 km ² both length and breadth wise of the given area. Which arrangement will give the maximum number of photographs ? Given scale is 1:10,000, format size is 23cm x 23cm, end lap 65% and side lap 20%.	[6] [CO2]	[BL5]
Q.3(a)	Explain Positive and Negative Relief Displacement with Proper Diagram.	[3] [CO2]	[BL2]
Q.3(b)	Analytically Derive the Equation for Height Measurement using 2 Aerial Photographs	[5] [CO3]	[BL4]
Q.3(c)	Explain any 2 of the following terms: (i) Collinearity Condition, (ii) Space Resection, (iii) Aero-Triangulation, (iv) Parallax	[2] [CO2]	[BL2]
Q.4(a)	Why do we need Ortho-rectification of Aerial Images?	[2] [CO3]	[BL2]
Q.4(a)	You are given an Aerial Photo in Hard copy (23x23cm) taken from the height of 1000m from the ground, and using a camera of focal length 20cm. You are asked to scan the photograph at 300 DPI. What is the Scale of the Aerial Phot? What will be the Spatial Resolution of the scanned Digital image?.	[8] [CO4]	[BL5]
Q.5(a)	What are the different types of UAV's available for various uses? Discuss the advantages and disadvantages of UAV based photogrammetry over aerial photogrammetry.	[5] [CO3]	[BL5]
Q.5(b)	Discuss any two real-life applications of UAV based photogrammetry?	[5] [CO4]	[BL3]

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