

BACHELOR OF ENGINEERING (CIVIL ENGINEERING) EXAMINATION 2023
(Second Year, Evening; First Semester, Supplementary)

SURVEYING III

Time: Three Hours

Full Marks 100

Use a separate Answer-Script for each part

PART I (50 Marks)

Instruction : Each question carries (5+5) 10 marks

1. Write short notes (any two) on (a) Types of films used in photogrammetry.
(b) Image Overlap.
© elements of image interpretation.
2. (a) Write short note on relief displacement.
(b) A tall tower was photographed from an elevation of 700m above the datum. The radial distances of the top and bottom of the tower from the principal points are 112.5mm and 82.40mm, respectively. If the bottom of the tower is at an elevation of 250m above the datum, then what is the height of tower? (Expressed in m)
3. (a) Write short note on stereoscopic parallax.
(b) A tower appears in two successive photographs taken at an altitude of 4000m above datum. Focal length of the camera is 160mm. The length of the air base is 300m. The parallax for the top and bottom of the pole are 72mm and 63mm respectively. What is the height of top of the tower above its bottom?
4. (a) Write short note on different properties of aerial photographs.
(b) A vertical photograph was taken from a height of 3200m above MSL with a camera of focal length 120mm. It contains two points a and b corresponding to ground points A and B. Calculate the horizontal length AB, as well as the average scale along the line 'ab' from the following data:

Photo Point	Elevation above MSL(m)	Photo Coordinates	
		X(mm)	Y(mm)
a	640	+19.50	-14.60
b	780	+26.70	+10.80

5. (a) Write short note on working principle of EDM.
(b) A tower of height 120m has an image of height 3.2 cm in photograph. Calculate distance of tower from camera if $f=152.4\text{mm}$.

[Turn over

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Question No.	Part II (50 Marks)	Marks
Answer Question No 1 or 2 & any TWO Questions from the rest of this Part		
1 (a)	Draw a typical 'spectral reflectance envelope' for deciduous and coniferous type tree.	10
2 (a)	Why 'Ground Truth Verification' is essential in remote sensing?	5
(b)	How do you identify the natural and artificial features through satellite imageries?	3
(c)	How do you differentiate the clouds from snow coverage in an image?	2
3 (a)	What is called Geo-referencing in digital image processing? Why it is essential? How it can be done?	3+2+3
(b)	What do you mean by image classification? How it can be categorized? Explain briefly.	2+4
(c)	What are different methodologies for image classification? Explain briefly.	6
4 (a)	What are the basic information that one can have from a FCC? Why the vegetation shows red in FCC?	5+2
(b)	When a playground will not show red colour in FCC?	3
(c)	How can you identify (visually) oxbow lake in FCC?	2
(d)	What is 'band ratio'? Why it is required in remote sensing?	3
(e)	Why the knowledge about the study area is essential for image interpretation?	5
5 (a)	How do you select different bands and colors for soil, vegetation and water? Explain briefly.	12
(b)	"Spectral reflectance of two different features may be same, and similar features may be different". Explain its correctness.	5
(c)	How do you identify the different kinds of vegetation in the satellite imageries?	3