BACHELOR OF CIVIL ENGINEERING EXAMINATION 2019
(Second Year, Second Semester)

SURVEYING III

Time: Three Hours

Full Marks 100
(Part I: 60 Marks
Part II: 40 Marks)

Use a separate Answer-Script for each part

Question No.		Part I (60 Marks)	Marks
		Answer question 1 as **COMPULSORY**, *and any* **TWO questions** *from* **2, 3, and 4** *in this* **PART**	
1	(a)	What is the difference between 'spectral reflectance envelope' and 'spectral reflectance curve'? Why this difference occurs?	5
	(b)	Compare between Land Survey, Photogrammetry, and Satellite Remote Sensing?	5
2	(a)	Explain fundamentals of visual image interpretation and its importance. What are the elements of visual image interpretation? Explain briefly.	5+10=15
	(b)	What is the importance of the temporal aspect of image interpretation? Explain briefly.	5
	(c)	What are the different applications of remote sensing in natural resource management? Explain briefly.	5
3	(a)	Write a short note on 'Edge Enhancement' of an image and its utility.	6
	(b)	What is called training stage in digital image processing? What is the utility of training stage?	2+4=6
	(c)	Explain different types of classifiers with sketches.	8
	(d)	"Spectral reflectance of two different features may be same, and similar features may be different". Explain its correctness.	5
4	(a)	What are the different steps of digital image processing? What are the utilities of these steps?	3+6=9
	(b)	What is 'Ground Truth Verification (GTV)'? Why it is essential for remote sensing?	2+2=4
	(c)	Draw a '5x5' pixel matrix for geo-coded pixel positions superimposed on original positions.	4
	(d)	How do you identify the river meandering dynamics from a time series satellite data?	4
	(e)	Define 'Ground Control Points (GCP)' and discuss its function.	4

B.E. CIVIL ENGINEERING. SECOND YEAR SECOND SEMESTER - 2019

Subject: SURVEYING-III   **Time: Three Hours**   **Full Marks: 100 (40 for Part-II)**

Part: Part-II

Use a Separate Answer-Script for Each Part
Answer any 2 (Two) questions

1. (a)	Explain the difference between 'Topographic Displacement' and 'Displacement Due to Tilt' in relation to Photogrammetry.	8
1. (b)	With a neat diagram deduce how the error due to tilt could be expressed as a fraction of the topographic displacement using standard terminologies and symbols.	12
2. (a)	With a neat diagram deduce the expression for finding out the height of a cloud from the image of the cloud and its shadow taken from a flight.	10
2. (b)	Calculate the cloud height if Height of the Flight = 2000 m; Distance of Object Image to Shadow Image = 15 mm; and Distance of Object Image to No Shadow Point Image = 20 mm.	5
2. (c)	A tree was found to have a parallax difference of 0.5 mm and the absolute parallax of the tree base is 90 mm. Find the flying height if the tree is 25 m high	5
3. (a)	With neat diagrams deduce the expressions for 'Air Base' In relation to Stereoscopic Study. What is 'Crabbing' and how it could be taken care of?	6+6
3. (b)	During Photogrammetry of an area of 80 km × 60 km, the RF was chosen to be 1:25000. Determine the total number of photographs to be taken for a complete air cover of the area. The dimension of the photographic plate is 230 mm × 230 mm; Fore and aft overlap is 60 %; and lateral overlap is 20%.	8