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Subject Code: BOE066

Roll No:

BTECH

(SEM. VI) THEORY EXAMINATION 2025-26

GIS & REMOTE SENSING

TIME: 3 HRS

M.MARKS: 70

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt all questions in brief.

2x7 = 14

(a)	List out the various elements of remote sensing	CO-1	K1
(b)	Explain the role of Sensors in Remote Sensing?	CO-2	K1
(c)	What are the different types of aerial photographs?	CO-2	K1
(d)	Write the three causes of relief displacement.	CO-3	K1
(e)	What is meant by stereoscopic vision?	CO-3	K1
(f)	What are the entities of spatial data?	CO-4	K1
(g)	Write full form of GIS.	CO-5	K1

SECTION B

2. Attempt any three of the following:

7 x 3 = 21

(a)	Explain the process of energy interaction with earth surface feature and state the general energy balance equation.	CO-1	K2
(b)	A line AB, 3000 m long, lying at an elevation of 600 m measures 10 cm on a vertical photograph for which focal length is 20 cm. Determine the scale of the photograph in an area the average elevation of which is about 900m.	CO-2	K3
(c)	Explain the process of supervised classification and how training areas are selected.	CO-3	K2
(d)	Describe the important bands of microwave remote sensing stating their applications and wavelength ranges.	CO-4	K1
(e)	Describe how GIS and remote sensing can be integrated for effective planning and decision-making	CO-5	K2

SECTION C

3. Attempt any one part of the following:

7 x 1 = 7

(a)	Illustrate the significant observations from spectral reflectance curve of vegetation & water using a neat sketch.	CO-1	K2
(b)	Describe the fundamental components of a remote sensing system and evaluate the specific advantages and limitations of using these techniques.	CO-1	K2

4. Attempt any one part of the following:

7 x 1 = 7

(a)	Describe the following terms by labelling them on a neat sketch of aerial photograph: (i) Angle of Tilt (ii) Photo Principal Point (iii) Photo Nadir point (iv) Principal Plane (v) Horizon Point	CO-2	K2
(b)	An area of size 280 km x 350 km is to be surveyed by photogrammetry. The number of photographs required to cover the area: Given: Format of photograph = 200 mm x 220 mm, Scale of photograph = 1: 25000, Average terrain elevation = 380m, Longitudinal overlap = 60%, Side overlap = 40% Focal length of camera = 210 m	CO-2	K3

5. Attempt any one part of the following:

7 x 1 = 7

(a)	Describe the term stereoscopic parallax and state the process to calculate height of object using stereoscopic parallax.	CO-3	K2
(b)	Differentiate Push broom & Whisk broom technique of data recording by a sensor.	CO-3	K4

6. Attempt any one part of the following:

7 x 1 = 7

(a)	Explain the procedure of map projection and three principal map projection techniques.	CO-4	K2
(b)	Illustrate with an example the spatial and attribute data type.	CO-4	K3

7. Attempt any one part of the following:

7 x 1 = 7

(a)	Discuss the role of GIS in integrating spatial and attribute data for water resource management.	CO-5	K4
(b)	Evaluate different methods of spatial data input and editing in GIS	CO-5	K4