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BTECH
(SEM VI) THEORY EXAMINATION 2023-24
GIS & REMOTE SENSING

TIME: 3 HRS**M.MARKS: 100**

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

SECTION A**1. Attempt all questions in brief.**

a.	Write the disadvantages of remote sensing.	2
b.	How remote sensing will be used for water resources?	2
c.	What are the different types of aerial photographs?	2
d.	Two locations, that are 200 km apart in actual are 10 cm apart in a map. What is the scale of the map?	2
e.	What features are on a vertical aerial photograph?	2
f.	Write the three causes of relief displacement.	2
g.	What are the main components of GIS?	2
h.	What are the entities of spatial data?	2
i.	Summarize the few possible encoding methods for different data sources.	2
j.	Show how the spatial and attribute data is linked in GIS.	2

SECTION B**2. Attempt any three of the following:**

a.	Explain the significance of EMR in remote sensing.	10
b.	Identify, what are the characteristics of EMR interaction with soil particles.	10
c.	Briefly explain about image parallax and its relationship with stereoscopic viewing of aerial photographs. Draw a diagram to explain parallax in aerial photos.	10
d.	Why is microwave remote sensing better suited for monitoring tropical rainforests than optical remote sensing? Explain.	10
e.	Explain the possible encoding methods for different data sources.	10

SECTION C**3. Attempt any one part of the following:**

a.	With example differentiate active passive remote sensing systems and passive remote sensing systems.	10
b.	Based on the function of sensors, identify the different types of sensors being used.	10

4. Attempt any one part of the following:

a.	List out the primary absorbents of electromagnetic energy in the atmosphere.	10
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 × 220 mm, Scale of photograph = 1 : 25000, Average terrain elevation = 380m, Longitudinal overlap = 60%, Side overlap = 40% Focal length of camera = 210 m	10

5. Attempt any one part of the following:

a.	Illustrate how the image is digitized by sampling and quantization process	10
b.	Analyze the various parameters of image processing (i) Band number (ii) Spectrum, (iii) wavelengths, (iv) applications.	10

6. Attempt any one part of the following:

a.	Illustrate with an example the spatial and attribute data type.	10
b.	Show the regional quadtree method that divides the raster into a hierarchy of quadrants.	10

7. Attempt any one part of the following:

a.	Explain the error propagation in overlay. Write the applications of overlay.	10
b.	Demonstrate how does GIS fit into natural resource management.	10