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B.TECH.
(SEM V) THEORY EXAMINATION 2022-23
GIS AND ADVANCE REMOTE SENSING

Time: 3 Hours**Total Marks: 100****Note:** Attempt all Sections. If you require any missing data, then choose suitably.

SECTION A

1. Attempt all questions in brief. 2x10 = 20

- (a) Differentiate between vertical photograph and aerial photograph.
- (b) Define the term stereoscopic parallax.
- (c) State the difference between active and passive remote sensors.
- (d) Explain the term radiometric resolution?
- (e) State the applications of GIS.
- (f) State the importance of Geo-referencing?
- (g) List out the 3 basic spatial entities in GIS particularly used for representation of vector data?
- (h) Explain the term raster data model.
- (i) Describe the term 'Digitization'?
- (j) State the importance of Metadata?

SECTION B

2. Attempt any three of the following: 10x3 = 30

- (a) An aerial photograph is taken from a flight at a height of 3.5 km above M.S.L. using a camera of focal length 152 mm. If the average ground elevation is 460m above the MSL, calculate the scale of photograph.
- (b) Explain in detail the process of height measurement by parallax measurement using fiducial line.
- (c) Describe the various atmospheric windows that finds applications in remote sensing?
- (d) Explain the different components of GIS in detail.
- (e) Explain the concept of object based data model and field based data model.

SECTION C

3. Attempt any one part of the following: 10x1 = 10

- (a) Formulate an expression to calculate height of an object from relief displacement for a vertical photograph.
- (b) Differentiate between the various types of aerial photographs with a neat sketches.

4. Attempt any one part of the following: 10x1 = 10

- (a) Explain the various advantages and limitations of Remote Sensing.
- (b) Describe the important observations that can be drawn out of spectral reflectance curves for vegetation using a neat sketch.

5. **Attempt any *one* part of the following:** **10x1 = 10**
- (a) Describe in detail the spatial data and attribute data and the process to join both of the data types.
 - (b) Explain the various types of map projection systems along with neat sketch.
6. **Attempt any *one* part of the following:** **10x1 = 10**
- (a) Describe the geobased data model and describe the process of geometric representation of spatial features.
 - (b) Explain the process of representation of topology using vector data model.
7. **Attempt any *one* part of the following:** **10x1 = 10**
- (a) Describe the various methods used for data input for a raster data model.
 - (b) Explain the various elements of Raster data model.

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