INSTITUTE OF AERONAUTICAL ENGINEERING
(Autonomous)
Dundigal-500043, Hyderabad

B.Tech V SEMESTER END EXAMINATIONS (REGULAR/ SUPPLEMENTARY) - FEBRUARY 2024
Regulation: UG20
REMOTE SENSING AND GIS

Time: 3 Hours   (CIVIL ENGINEERING)   Max Marks: 70

Answer ALL questions in Module I and II
Answer ONE out of two questions in Modules III, IV and V
All Questions Carry Equal Marks
All parts of the question must be answered in one place only

MODULE – I

1. (a) Outline the principles of aerial photography and discuss how they influence the acquisition and interpretation of aerial imagery? [BL: Understand| CO: 1|Marks: 7]

   (b) Describe the methods for scale determination on a single vertical aerial photograph, emphasizing the relationship between ground distance and image distance. [BL: Understand| CO: 1|Marks: 7]

MODULE – II

2. (a) Explore various sensors used in remote sensing, including satellites, and explain how they contribute to data acquisition. [BL: Understand| CO: 2|Marks: 7]

   (b) Analyze the electromagnetic spectrum and its relevance to remote sensing, highlighting the different spectral bands and their applications. [BL: Apply| CO: 2|Marks: 7]

MODULE – III

3. (a) Summarize geographic information systems (GIS) and explore the associated terminology, including fundamental concepts that form the foundation of GIS.

   [BL: Understand| CO: 3|Marks: 7]

   (b) List the components of GIS, explaining the roles of hardware, software, data, and users in the overall functionality of a GIS. [BL: Understand| CO: 3|Marks: 7]

4. (a) Discuss the history of GIS, tracing its evolution over time, and highlight key milestones in its development. [BL: Understand| CO: 4|Marks: 7]

   (b) Analyze the different categories of GIS, distinguishing between various types and their specific applications in different domains. [BL: Understand| CO: 4|Marks: 7]

MODULE – IV

5. (a) Explore GIS data file management, detailing the methods and procedures used for storing and organizing geographic information within a GIS. [BL: Understand| CO: 5|Marks: 7]

   (b) Provide an introduction to GIS, emphasizing its role in spatial data management and analysis, and discuss its applications across various domains. [BL: Apply| CO: 5|Marks: 7].

6. (a) Outline the concept of database models, with a focus on hierarchical database models, network systems, and relational database models, discussing their applications and suitability for GIS data management. [BL: Understand| CO: 5|Marks: 7]

   (b) Discuss the functions and components of a database management system (DBMS) within the context of GIS, highlighting how it facilitates efficient data retrieval, storage, and manipulation. [BL: Apply| CO: 5|Marks: 7]

MODULE – V

7. (a) Describe the essential components and methodologies for conducting surface water mapping and inventory in a watershed. [BL: Understand| CO: 6|Marks: 7]

   (b) What are the main principles of watershed management for sustainable development, and how can these principles be practically implemented? [BL: Understand| CO: 6|Marks: 7]

8. (a) Explain the concept of runoff potential indices in watersheds and discuss their significance in water resource management. [BL: Understand| CO: 6|Marks: 7]

   (b) Discuss the methods and considerations for assessing and monitoring drought impacts in a watershed [BL: Understand| CO: 6|Marks: 7]

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