

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-V EXAMINATION – SUMMER 2025

Subject Code:3151308

Date:20-05-2025

Subject Name:Basics of Remote Sensing & GIS

Time:02:30 PM TO 05:00 PM

Total Marks:70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

- Q.1** (a) Define the following terms: **03**
1. Swath 2. Nadir 3. Orbital calendar
- (b) Differentiate between Active Remote Sensing and Passive Remote Sensing. **04**
- (c) Explain the 'interaction with target' from remote sensing process in detail. **07**
- Q.2** (a) Explain visual image interpretation key for build-up land. **03**
- (b) Enlist and explain image interpretation process in detail. **04**
- (c) Enlist and explain elements of visual image interpretation in detail. **07**
- OR**
- (c) Explain the interpretation of absolute temperature in thermal imagery by factors. **07**
Compare thermal property of water and land.
- Q.3** (a) Explain the significance of almanac and ephemeris data. **03**
- (b) Differentiate between Global Positioning System (GPS) and Differential Global Positioning System (DGPS). **04**
- (c) Enlist and explain the errors introduced in GPS in detail. **07**
- OR**
- Q.3** (a) Explain the functional segments of GPS. **03**
- (b) Discuss the significance of ground-truth data. **04**
- (c) Discuss the applications of Global Positioning System (GPS). Highlight its applications environmental engineering field. **07**
- Q.4** (a) Define the terms: 1. Sea Surface Temperature (SST) **03**
2. Digital Elevation Model (DEM) 3. Geology
- (b) Discuss the significance of remote sensing application in environmental impact assessment. **04**
- (c) Discuss the applications of remote sensing in oceans and coastal monitoring. **07**
- OR**
- Q.4** (a) Define the term Geographical Information System (GIS). **03**
- (b) Differentiate between spatial and attribute data. Explain methods of data integration in detail. **04**
- (c) Enlist and explain the map projections in detail. **07**
- Q.5** (a) Draw a block diagram of geometry of aerial photograph. **03**
- (b) Explain the concept of film size and film resolution. **04**
- (c) Enlist and explain types of Filters. **07**

OR

- Q.5** (a) Define the term vantage point and scale of photograph. **03**
- (b) The size of a vertical aerial photograph is 23 cm × 23 cm. the scale of the photograph is 1:20,000. Find the area of the ground represented by photograph. **04**
- (c) Enlist and explain types of camera. **07**
