

**DEPARTMENT OF GEOGRAPHY**  
**School of Earth and Atmospheric Sciences**  
**University of Madras**  
**Guindy, Chennai-600025**

**Entrance Test for M.Tech Geoinformatics - July,2024**

1	Date of Entrance Test	16 <sup>th</sup> July, 2024(Tuesday)
2	Certificate Verification	8.30 A.M – 9.30 A.M
3	Time of Entrance Test	10.30 A.M – 12.30 P.M
4	Venue of Entrance Test	Department of Geography University of Madras Multistory Building(7 <sup>th</sup> Floor) Guindy Campus, Chennai - 600 025
5	Criteria of marks for selection	A. Qualifying examination marks : 50% B. Entrance Examination marks :50% C. Total marks :100

**M.Tech Geoinformatics**

**(Syllabus)**

**1. INFORMATION SYSTEMS AND DATABASE MANAGEMENT**

Scope and developments of information technology; Concepts and overview of information systems; Information systems design, analysis and management; Database Management Systems for Information Systems; Data models; Internet, Intranet, and Extranet; web-publishing; decision support system.

**2. GEOGRAPHICAL INFORMATION SYSTEMS**

Spatial data and information, Reference systems and datums; Approaches and Components; History and Development of GIS - Spatial Data Models; DBMS and GIS - Data Capture and Geoprocessing; GIS for spatial modelling and applications

**3. PHOTOGRAMMETRY, REMOTE SENSING and GPS**

Basics of aerial photography- photo interpretation and Photogrammetric applications; Fundamentals of remote sensing and its applications; basics of GPS and its applications

**4. SPATIAL STATISTICS AND MATHEMATICS**

Scales of measurement and nature of data- statistical summaries; Basics of simple correlation and regression; Algebra, Matrix Algebra - Fundamentals and applications; Boolean algebra and set operations; Spatial problems of sampling and data gathering - data collection by field methods

**5. CARTOGRAPHY**

Scope of Cartography- Spatial data and map projections- types of maps – mapping techniques - Map scale-latitude and longitude, time and distance- map design and symbolisation- map elements; Computer and Cartography, Information age and mapping, Web Cartography.

## **PATTERN OF MODEL QUESTION PAPER**

**Department of Geography, School of Earth and Atmospheric Sciences**

**University of Madras, Guindy, Chennai-600025**

**Admission - Post Graduate Degree Course – July, 2024**

**Entrance Test for M.Tech Geoinformatics**

**Maximum Marks : 100**

**Time : 2 Hours**

### **INSTRUCTIONS**

1. Keep the Question Book upside down until instruction is given to open the book. It has to be kept as it is.
2. Defects in the Question Book like missing page, printing mistakes etc., should be brought to the attention within five minutes after opening the book. Therefore a careful inspection has to be made for such defects.
3. Enter on the Response Answer Sheet, your Hall Ticket Number in the space provided. Double check to see that the number is entered correctly.
4. Checking has to be made about Community and Percentage of marks obtained in the qualifying examination.
5. After the test the Question book and Response Answer sheet should be handed over before leaving the seat.
6. No marking will be made on the question paper and all answers should be provided in the response answer sheet.
7. From four alternative answers (A) (B) (C) (D) for each of the multiple-choice questions the correct answer has to be circled appropriately.
8. Even if the test has been completed within the available time, please remain in the seat till the announcement is made for optionally leaving the hall.
9. Use only pens or ball pens or felt pens with Blue or Black ink and avoid fancy color inks.

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### **MULTIPLE CHOICE QUESTIONS (100 x 1 = 100)**

**Answer all questions, Mark the answers in the response sheet**

1. The arrangement of terrain features which provides attributes: the shape, size and texture of objects, is called
    - a. Spatial variation
    - b. Spectral variation
    - c. Temporal variation
    - d. Radiometric variation
  2. Which one of the following errors is produced by platform characteristics of the sensor?
    - a. Altitude
    - b. Altitude variation
    - c. Orbit drift
    - d. All of these
  3. If  $\theta$  is the angle of scan measured from the nadir, the ground distance swept by the sensor IFOV is proportional to
    - a.  $\sin 2\theta$
    - b.  $\cos 2\theta$
    - c.  $\tan 2\theta$
    - d.  $\sec 2\theta$
  4. The coherence length over which there is a strong relationship between amplitudes is;
    - a. Inversely proportional to the bandwidth
    - b. Directly proportional to the bandwidth
    - c. The square of the bandwidth
    - d. None of the above
100. Which one of the following frequency regions is a part of sun's radiation?
- a. Visible
  - b. Visible frequency region
  - c. Radio frequency region
  - d. Ultraviolet frequency region