REMOTE SENSING (SEMESTER - 8)

CS/B.TECH (ECE-NEW)/SEM-8/EC-804D/09
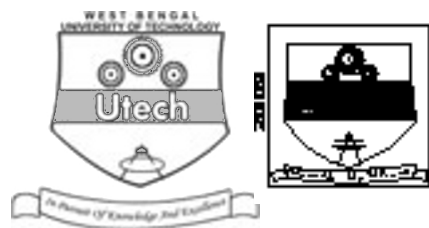
1. ....
   Signature of Invigilator

2. ....
   Signature of the Officer-in-Charge

Reg. No.

Roll No. of the Candidate

CS/B.TECH (ECE-NEW)/SEM-8/EC-804D/09
ENGINEERING & MANAGEMENT EXAMINATIONS, APRIL – 2009
REMOTE SENSING (SEMESTER - 8)

Time : 3 Hours]   [Full Marks : 70

INSTRUCTIONS TO THE CANDIDATES :

1. This Booklet is a Question-cum-Answer Booklet. The Booklet consists of **32 pages**. The questions of this concerned subject commence from Page No. 3.

2. a) In **Group – A**, Questions are of Multiple Choice type. You have to write the correct choice in the box provided **against each question**.

   b) For **Groups – B** & **C** you have to answer the questions in the space provided marked 'Answer Sheet'. Questions of **Group – B** are Short answer type. Questions of **Group – C** are Long answer type. Write on both sides of the paper.

3. **Fill in your Roll No. in the box** provided as in your Admit Card before answering the questions.

4. Read the instructions given inside carefully before answering.

5. You should not forget to write the corresponding question numbers while answering.

6. Do not write your name or put any special mark in the booklet that may disclose your identity, which will render you liable to disqualification. Any candidate found copying will be subject to Disciplinary Action under the relevant rules.

7. **Use of Mobile Phone and Programmable Calculator is totally prohibited in the examination hall.**

8. You should return the booklet to the invigilator at the end of the examination and should not take any page of this booklet with you outside the examination hall, **which will lead to disqualification**.

9. Rough work, if necessary is to be done in this booklet only and cross it through.

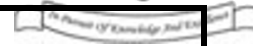### No additional sheets are to be used and no loose paper will be provided

FOR OFFICE USE / EVALUATION ONLY
Marks Obtained

	Group – A								Group – B		Group – C			Total Marks	Examiner's Signature
Question Number															
Marks Obtained															

....
Head-Examiner/Co-Ordinator/Scrutineer

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ENGINEERING & MANAGEMENT EXAMINATIONS, APRIL – 2009

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GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for the following : $10 \times 1 = 10$

   i) A Geolibraries is a digital library filled with the information related to

      a) All types of information
      b) Bio-information

      c) Chemical infrmation
      d) Geoinformation.

   ii) Stefan-Boltzmann Law states that

      a) $M = \sigma T^2$
      b) $M = \sigma T^4$

      c) $M = \sigma T$
      d) $M = \sigma T^{-4}$.

   iii) Light Detection and Ranging (LiDAR) measures

      a) x, y, z and reflection
      b) x, y, z only

      c) x, y, z and intensity
      d) none of these.

   iv) Which of the following is the most precise remote sensing radiometric measurement ?

      a) Hue
      b) Polarization

      c) Radiance
      d) Size.

   v) The thermal infrared band is

      a) $1 - 8 \ \mu$m
      b) $20 - 30 \ \mu$m

      c) $3 - 14 \ \mu$m
      d) $15 - 25 \ \mu$m.

vi) Map projections are a mathematical transformation that convert into

a) 2D to 3D map
b) 3D to 2D map

c) 3D to 3D map
d) 2D to 2D map.
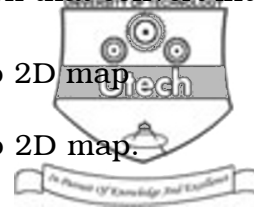
vii) A set of multi-band data with respect to each pixel arranged spatially by pixel number and line number is called

a) Band Interleaved by Pixel
b) Bank Interleaved by Line

c) Band Sequential
d) Raster.

viii) GIS is a package consisting four basic parts that is

a) Hardware, Software, Data and Thinking Operator

b) Hardware, Software, Information and Thinking Operator

c) Hardware, Software, Data and Data capturing Operator

d) Hardware, Software, Data and Sensor.

ix) The grainy 'salt and pepper' type texture in a radar image caused by interferences from multiple scattering returns within each resolution cell is popularly known as

a) Foreshortening
b) Speckle

c) Layover
d) Global Noise.

x) Components of a Remote sensing system are

a) Target, Energy Source and Transmission

b) Target, Energy Source and Sensor

c) Target, Source and Transmission

d) None of these.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following.   3 × 5 = 15

2. What do you understand by remote sensig ? Is Ultrasound scanning for determining the growth of a baby in a womb remote sensing ? State some advantages and limitations of remote sensing.

3. Write down the difference between old fashioned paper map and GIS method applied map.

4. Explain stereomodelling and stereoscopic 3D viewing.

5. Differentiate between Global Noise and Local Noise. What is the use of Sigma Filter ?

6. Draw and describe the GIS software development steps.

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following questions.   3 × 15 = 45

7. a) Write down the definition of Geographical Information System.

    b) Describe the different components of a Geographical Information System.

    c) Write down the several functions of Geographical Information System.   15

8. Explain the working principle of the following :   3 × 5

    a) RADAR

    b) LIDAR

    c) SONAR.

9. a) Briefly discuss about remote sensing use in GIS.

    b) How to calculate the reflected radiation by Remote sensing ?

    c) Discuss about remote sensing of Vegetation and water.   2 + 3 + (5 + 5)

10. a) What are Thematic maps ?

    b) Write about the role of Digital Image Processing technology in Remote Sensing.

    c) What is a Multi Spectral Remote Sensing System ?   5 + 5 + 5

11. Write short notes on any *three* of the following :   3 × 5

    a) GPS

    b) Active and Passive Sensors

    c) Modern trends in GIS

    d) Radiometric Calibration and Distortion Correction

    e) Microwave remote sensing system.

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    END