

Name :

Roll No. :

Invigilator's Signature :

CS/B.Tech(ECE)/SEM-8/EC-804D/2012

2012

REMOTE SENSING

Time Allotted : 3 Hours

Full Marks : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following :

$$10 \times 1 = 10$$

i) The relationship between the wavelength (λ), frequency (ν) and velocity of light (c) of EMR is based on the formula

a) $c = \lambda\nu$

b) $c = \lambda/\nu$

c) $\lambda = c\nu$

d) $\lambda = c/\nu$.

ii) The amount of energy characterizing a photon is determined using Plank's general equation

a) $Q = h/\nu$

b) $Q = h\nu$

c) $h = Q\nu$

d) $\nu = Qh$.

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- iii) In atmospheric window the visible light region range is
- a) $0.4 - 1.0 \mu\text{m}$ b) $0.4 - 2.0 \mu\text{m}$
- c) $0.4 - 0.7 \mu\text{m}$ d) $0.4 - 3.0 \mu\text{m}$.
- iv) An ideal remote sensing needs
- a) an isotropic energy source
- b) a monochromatic energy source
- c) a non-uniform energy source
- d) a uniform energy source.
- v) A filter can transmit or reflect a specified range of
- a) wavelength b) light
- c) energy d) frequency.
- vi) Dispersing element is
- a) Filter b) Prism
- c) Spectrometer d) Detectors.
- vii) LIDAR stands for
- a) Lazer Detection And Ranging
- b) LED Detection And Ranging
- c) Light Detection And Ranging
- d) Liquid Detection And Ranging.
- viii) Polarization refers to the orientation of the
- a) E-H fields b) H-field
- c) Transverse E-field d) E-field.

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- ix) Digital photogrammetry is applied to digital images that are stored and processed in a
- a) Computer
 - b) Processor
 - c) Memory
 - d) None of these.
- x) For representing 3D earth's surface we use
- a) Photogrammetry
 - b) DTM or DEM generation
 - c) Orthorectification
 - d) Y-parallax.
- xi) Radargrammetry is a method that derives a topographic map from two overlapping
- a) LIDAR images
 - b) SONAR images
 - c) Rarad images
 - d) Digital images.
- xii) Digital image processing is carried out using
- a) Mainframe-based
 - b) Microcomputer-based
 - c) Minicomputer-based
 - d) All of these.

GROUP – B

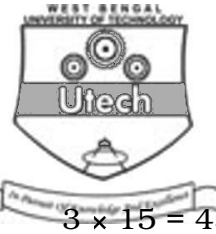
(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

2. What is remote sensing ? Explain about distance remote sensing. $2 + 3$
3. Distinguish between active and passive remote sensing.
4. What do you understand by digital image ?
5. What is radargrammetry ?
6. Write about the advantages of GIS over DBMS.

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GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following.

3 × 15 = 45

7. 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
8. What do you understand by digital image ? What is sensor ?
Explain about different sensors used in remote sensing.
8 + 7
9. What is photogrammetry ? Explain the photogrammetric process with a suitable workflow diagram. What is the difference between LIDAR and photogrammetry ? 2 + 9 + 4
10. Define GIS. Describe the key components of GIS. Describe GIS in the context of information infrastructure. 2 + 7 + 6
11. Write short notes on any *three* of the following : 3 × 5
- a) Role of Shadow to measuring height
 - b) Limitations of GIS
 - c) Management of project
 - d) 4D GIS
 - e) GPS
 - f) Microwave remote sensing system.

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