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CS/B.Tech (ECE-N)/SEM-8/EC-804D/2010 2010

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) Microwave radar band is
 - a) 1 mm to 10 mm
- b) 1 mm to 100 mm
- c) 1 mm to 5 mm
- d) 5 mm to 10 mm.
- ii) Whavelength associated with a quantum of energy is
 - a) $\lambda = hc/Q$
- b) $\lambda = Q/hc$
- c) $\lambda = h/cQ$
- d) $\lambda = c/hQ$.
- iii) A computer based information system used to digitally represent and analyses the geospatial data or geographic data is
 - a) A GPS

b) Landsat

c) A GIS

d) None of these.

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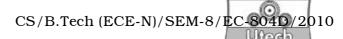
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- iv) Precise measurement of Earth features can be obtained by
 - a) high oblique photographs
 - b) low oblique photographs
 - c) vertical aerial photographs
 - d) all of these types of photographs.
- v) Lines connecting points of equal air temperature are known as
 - a) Isohyets
- b) Isotherms
- c) Isobars
- d) Contour lines.
- vi) LIDAR has been conceived as a method to directly and accurately capture
 - a) Digital surfaces
 - b) Analog surfaces
 - c) Both analog and digital surfaces
 - d) None of these.
- vii) Which technology can be used for day or night data collection?
 - a) Radar

- b) LIDAR
- c) Photogrammetry
- d) Sonar.
- viii) To replace film-based aerial cameras, enabling small, medium or large-scale mapping we use

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- a) Metric cameras
- b) Stereometric cameras
- c) Digital Metric Cameras
- d) Amateur cameras.



- ix) To obtain the information about the Earth's weather, what type of satellite is used for remote sensing of the Earth?
 - a) Meteorological type satellites
 - b) Oceanographic type satellites
 - c) Terrestrial type satellites
 - d) None of these.
- x) Terrestrial satellites are used to obtain
 - a) Earth's weather
- b) Earth's land surface
- c) Earth's oceans
- d) None of these.
- xi) Ground coordinate system are usually expressed in
 - a) feet or metres
- b) feet or cms
- c) feet or inches
- d) inches or metres.
- xii) The internal geometry of a digital camera is defined by specifying
 - a) only focal length
 - b) both focal length and pixed size of CCD
 - c) only pixel size of CCD
 - d) none of these.

GROUP - B

(Short Answer Type Questions)

Answer any three of the following.

 $3 \times 5 = 15$

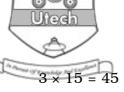
- 2. What is remote sensing? Explain about the components of a remote sensing system?
- 3. What are the functions of GIS ? State some adantages of GIS.
- 4. Differentiate between global noise and periodic noise. Explain about electromagnetic spectrum?
- 5. Explain about mobile GIS.
- 6. What is photogrammetry? Explain the workflow of a photogrammetry?

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(Long Answer Type Questions)

Answer any three of the following.



7. What is GPS system ? Write down the several functional segments of GPS. Explain the working principle of GPS.

2 + 8 + 5

- 8. a) What is digital image processing?
 - b) Explain the following related to digital image processing :
 - i) Data formats of digits image.
 - ii) Metadata of digital image.
 - iii) Display of digital image.

3 + 4 + 4 + 4

- 9. Explain about the use of GIS in multimedia. Discuss about 3D GIS and mobile GIS. 5+5+5
- 10. What are active and passive microwave remote sensing? Explain about electromagnetic spectrum. 5 + 5 + 5
- 11. Write short notes on any *three* of the following :

 3×5

- a) Potential and limitations for remote sensing of sea, land and ice using GPS reflected signals
- b) Advantage and disadvantages of remote sensing for land evaluation
- c) Collaborative GIS (CGIS)
- d) LIDAR
- e) 3D representation of DEM.

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