

Invigilator's Signature : .....

## CS/M.Tech(EIE-OLD)/SEM-2/CIM-205C/2012 2012

## **REMOTE SENSING & CONTROL**

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.

Answer any *five* questions.  $5 \times 14 = 70$ 

- 1. a) Explain the data compression technique using DSP.
  - b) Determine the total megabytes for a scanning system for the purpose of capturing aerial photo; it is to be scanned at resolution of 300 pts/inch. The scanning system photo encompasses a 16 inch square area.
  - c) Discuss the application of DSP in radar system.

5 + 4 + 5

- 2. a) What is geographic information system ?
  - b) Discuss the spectral, spatial and temporal characteristics.
  - c) Classify the nature and object in remote sensing.

2 + 9 + 3

- 3. Describe the importance of the sensor technology and mode of sensing in remote sensing. Discuss in detail optical mechanical scanner, cross track scanner and push broom scanner. 5 + 3 + 3 + 3
- 4. Explain with figure and diagram about (a) colour look up tables, (b) special enhancement, (c) gray scale conversion and (d) radiometric enhancement. 3 + 4 + 4 + 3

30332 (M.Tech)

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CS/M.Tech(EIE-OLD)/SEM-2/CIM-205C/2012

- 5. Write short notes on any *two* of the following topics
  - a) NOAA AVHRR
  - b) Geometric characteristics of aerial photography
  - c) Application of remote sensing.
- 6. a) What is photographic scale ?
  - b) Discuss about photo co-ordinate measurement.
  - c) Briefly describe about the measurement of vertical area photographs for remote sensing. 2 + 5 + 7
- 7. a) Briefly describe the agricultural application of remote sensing.
  - b) How does the EM radiation play an important role in remote sensing ? What are the different characteristics of EM spectrum ?
  - c) How would thermal imagery be useful in an urban environment?
  - d) What is colour photography ? 6 + 4 + 2 + 2
- 8. a) Briefly explain the geometric components of relief displacement.
  - b) What is image enhancement in the context of remote sensing ?
  - c) Assume a vertical photograph was taken at a flying height of 5000 m above sea level using a camera with 152 mm focal length lens. (a) Determine the photo scale at points *A* and *B*, which lie at elevations of 1200 m and 1960 m, (b) what ground distance corresponds to a 20.1 mm photo distance measured at each of these elevations? 6 + 3 + 5

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