

Unit - V

5. a) Write a brief note on electron magnetic energy.
b) Explain visual interpretation and digital interpretation.
c) Define the terms:
i) Sensors for microwave region
ii) Multispectral scanners
iii) Sensors for infrared region
d) What is GIS? What are GIS components? Explain the advantages of GIS.

OR

Discuss in brief the correction of satellite image data and different types of correction.

Roll No

CE-502

B.E. V Semester

Examination, December 2016

Advanced Surveying

Time : Three Hours

Maximum Marks : 70

- Note:** i) Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.
ii) All parts of each question are to be attempted at one place.
iii) All questions carry equal marks, out of which part A and B (Max. 50 words) carry 2 marks, part C (Max. 100 words) carry 3 marks, part D (Max. 400 words) carry 7 marks.
iv) Except numericals, Derivation, Design and Drawing etc.

Unit - I

1. a) Describe briefly the salient features of total station.
b) Explain the basic principle of EDM with neat sketch.
c) Discuss the working of digital planimeter.
d) Write short notes on:
i) Centring
ii) Apparatus levelling up
iii) Measurements of co-ordinates.
iv) Measurement of bearing with regard to total station.

OR

What are the various electronic data recording devices available? Compare their merits and demerits.

Unit - II

2. a) What are the uses of field astronomy in surveying?
- b) Write short notes on:
 - i) Geographical or terrestrial poles
 - ii) Terrestrial latitude and longitude
- c) Write the steps to determine LST at LMM from GST at GMM.
- d) The altitudes of a star at upper and lower culminations were observed as $61^{\circ}36'30''$ and $24^{\circ}24'40''$ respectively at a place in north latitude. These values are corrected for refraction. Find the latitude of the place and the declination of the star.

OR

Determine the LMT at the following place whose longitudes are given, if the Greenwich Civil time was $5^h 34^m 15^s$ PM on July 4, 1966.

- i) $70^{\circ}20'$ E
- ii) $70^{\circ}20'$ W
- iii) $112^{\circ}38'30''$ E

Unit - III

3. a) What do you mean by DTM?
- b) Explain the different types of resolutions.
- c) Write short notes on:
 - i) GPS segment and uses
 - ii) Elements of satellite
 - iii) GPS receivers
- d) What are different components of GPS? Explain in briefly the uses of GPS.

OR

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Explain any four terms:

- i) Terrain analysis
- ii) Watershed management
- iii) Multi spectral scanners
- iv) Geostationary satellites
- v) Sun-synchronous satellites

Unit - IV

4. a) What is photogrammetry? Discuss its limitations.
- b) Write a short notes on photomaps and mosaic.
- c) What are the various methods of determining flying height?
- d) What do you understand by relief displacement on a vertical photograph? Derive an expression for its determination.

OR

An area 40km in the NS direction and 36km in the EW direction is to be photogrammetrically surveyed, for this aerial photography is to be made with the following data:

- i) Photographs size = $20\text{cm} \times 20\text{cm}$
- ii) Average scale of photographs = 1:15,000
- iii) Average elevation of the terrain = 450m
- iv) End lap = 60%
- v) Side lap = 30%
- vi) Ground speed of air craft = 220km/hr
- vii) Focal length of camera lens = 30cm

Calculate the following data:

Flying height of the air craft, number of photographs in each flight, number of flights, total number of photographs, spacing of flight lines, ground distance between exposures, exposure interval.

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