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(Pages: 3)

Reg.	No

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# **B.TECH. DEGREE EXAMINATION, MAY 2014**

## Fourth Semester

Branch: Civil Engineering

CE 010 405—SURVEYING - II (CE)

(New Scheme-2010 admission onwards)

[Regular/Improvement/Supplementary]

Time: Three Hours

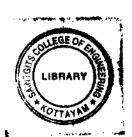
Maximum: 100 Marks

#### Part A

Answer all questions.

Each question carries 3 marks.

- 1. What is meant by eccentricity of signal?
- 2. Distinguish between systematic error and accidental error.
- List the equipments required for sounding.
- 4. What is relief displacement?
- 5. What is declination-hour angle co-ordinate system?



 $(5 \times 3 = 15 \text{ marks})$ 

#### Part B

Answer all questions.

Each question carries 5 marks.

- 6. Describe a method of extending a baseline.
- 7. Explain the method of developing normal equation.
- 8. With a suitable example, explain the distance measurement using EDM.
- 9. Explain various parts of aerial camera and their uses.
- 10. Obtain the relationship among LMT, LAT and equation of time.

 $(5 \times 5 = 25 \text{ marks})$ 

Turn over

## Part C

# Answer all questions. Each full question carries 12 marks.

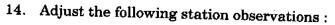
11. Two triangulation stations A and B are 40 km apart and have elevations of 170 m and 166 m respectively. Find the minimum height of signal required at B so that the line of sight may not pass nearer the ground than 3 m. The intervening ground may be assumed to have a uniform elevation of 150 m.

Or

- 12. The attitudes of two proposed triangulation stations A and C, 65 miles apart, are 703 ft and 3520 ft respectively above the level datum, while the heights of two eminences B and D on the profile between A and C are 1170 and 2140 ft respectively. The distance AB and AD being 24 miles and 45 miles respectively. Ascertain if A and C are intervisible and, if necessary, determine a suitable height of a scaffold at C, given that A is a ground station. The earth's mean radius may be taken as 3960 miles, and coefficient of refraction 0.07.
- 13. The observations closing the horizon at a station are:

Find the most probable values of the angles A, B and C.





- 15. (a) Explain how the soundings are located by:
  - (i) Two angles from the shore.
  - (ii) Intersecting ranges.





G 527

(8 marks)

Or

- 16. Describe a total station. Explain surveying procedure using a total station. What are its advantages and applications?
- 17. The elevations of points in an area vary from 136 m to 184 m. Aerial photographs were taken with a camera having a focal length of 200 mm. Determine:
  - (i) The flying height required to have a photographic scale of 1 in 8000; and
  - (ii) The photographic scale if the flying height is 2500 m.

(b) Derive the analytical solution of the three point problem.

Or

- 18. Define remote sensing. Explain the electromagnetic energy and electromagnetic spectrum used in remote sensing.
- 19. Explain the corrections for refraction, parallax semidiameter and dip, required in astronomical observations.

Or

20. (a) Define and draw the following with neat sketches (i) Declination; (ii) Hour angle; and (iii) Right ascension.

 $(3 \times 2 = 6 \text{ marks})$ 

(b) Calculate the local apparent time of an observation taken at local mean time 10 hr. 30 min at longitude 78° 30′ E. The equation of time at GMN is 3 min 4.52 sec subtractive from the apparent time and decreasing at the rate of 0.3 sec/hour.

(6 marks)

 $[5 \times 12 = 60 \text{ marks}]$