Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 80201

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2016.

Fourth Semester

Civil Engineering

CE 6404 — SURVEYING – II

(Regulation 2013)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is meant by phase of a signal?
2. Define reduction to centre.
3. What is parallax? How can it be eliminated?
4. What is the principle of least squares?
5. What are the advantages and disadvantages of total station?
6. What are the types of accuracy of total station?
7. Write the principle of GPS.
8. Define triangulation.
9. What is meant by scale of a photograph?
10. What is three point problem in hydrographic surveying?

PART B — (5 × 16 = 80 marks)

11. (a) (i) What is meant by satellite station? Derive the expression for reducing the angles measured at the satellite station to centre. (8)

(ii) From an eccentric station S, 12.25 m to the west of the main station B, the following angles were measured length of AB = 5286.5 m and BC = 4932.2 m. $\angle BSA = 76°25'32"$.

The stations S and C are to the opposite sides of the line AB. Calculate the corrective angle of ABC if angle of CSA = 54°32'20". (8)

Or

(b) (i) What are the methods of measurement of base line and explain any one with neat sketch? (6)

(ii) A steel tape is 30 m long at a temperature of 15°C when lying horizontal on ground. If C/S area is 0.08 cm² and weight 18 N and coefficient of expansion is 117×10^{-7} /° C. The tape is stretched over 3 supports held at same level and at equal intervals. Calculate the actual length between and graduations at temp = 25°C pull 180 kg, $E = 2.1 \times 10^5 N/cm^2$. (10)

12. (a) (i) What is meant by weight of observation? Enumerate laws of weight giving examples. (8)

(ii) The angle of triangle ABC were recorded as follows :

A = 77°14'20" wt – 4

B = 49°40'35" wt – 3

C = 53°04'52" wt – 2.

Give the corrected value of angles. (8)

Or

(b) Find the most probable values of angles A and B from the following observations :

A = 9°48'36.6" wt – 2

B = 54°37'48.3" wt – 3

A + B = 104°26'28.5" wt – 4. (16)

13. (a) (i) Brief a comparison between microwave system and electro optical system. (10)

(ii) What are the important precautionary measures and maintenance of total station instrument? (6)

Or

(b) Explain in detail about the measuring principle working principle and sources of error in infrared and laser total station instruments. (16)

14. (a) Explain satellite configuration and signal structure with neat sketches. (16)

Or

(b) What are the salient features of hand held and geodetic receivers? Explain with neat sketches. (16)

15. (a) What are simple curves and compound curves. Explain step by step procedure of any one method each for setting out simple and compound curve.

Or

(b) Write short notes on :

(i) Electromagnetic distance measurement. (5)

(ii) Aerial photograph. (5)

(iii) Stereoscopy. (6)
