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

Question Paper Code : 51247

B.E/B.Tech. DEGREE EXAMINATION, MAY/JUNE 2016

Third Semester

Civil Engineering

CE 2204/CE37/10111 CE307 – SURVEYING – I

(Regulations 2008/2010)

Time : Three Hours **Maximum : 100 Marks**

Answer ALL questions.

PART – A (10 × 2 = 20 Marks)

1. What is meant by scale of plan ?
2. What is a well conditioned triangle ?
3. What are the personal articles of a surveyor can cause local attraction ?
4. Find the true bearing of the line MN if its magnetic bearing is S 35° W and the declination is 4° 30′ West.
5. Explain the use of Traversing.
6. Explain the use of Dumpy and Tilting levels.
7. What is meant by balancing-in in theodolite surveying ?
8. State the different field works to be carried out in theodolite traversing.
9. What are 'Vertical curves in Highway Route Surveying.
10. List some mine survey equipments.

PART – B (5 × 16 = 80 Marks)

11. (a) (i) Explain the principles of surveying. **(10)**

(ii) A 20 m chain used for a survey was found to be 20.10 m at the beginning and 20.3 m at the end of the work. The area of the plan drawn to a scale of 1 : 5000 was measured with the help of a planimeter and found to be 39.84 m^2. Find the correct area in the field. **(6)**

OR

(b) (i) In chaining across a pond, stations M and N were selected on opposite sides of pond. A line MO 200 m long was set out to the left of MN and line MP was set out on the right side of MN such that O, N and P are lying in a straight line. The length of MP was found to be 275 m. ON and NP were measured as 125 m and 150 m respectively. Determine the distance between M and N. **(10)**

(ii) Describe the corrections for tension, temperature and sag in chain surveying. **(6)**

12. (a) Following bearings were taken in running a compass traverse. At what stations do you suspect local attractions ? Find the corrected bearings and included angles. **(16)**

Line	F.B.	B.B.
PQ	N 46° 10′ E	S 46° 10′ W
QR	S 60° 40′ E	N 61° 20′ W
RS	S 10° 30′ E	N 08° 50′ W
SP	N 79° 40′ W	S 80° 40′ E

OR

(b) Discuss the following in detail about plane tabling :

13. (a) Following readings were observed successively with a levelling instrument. The instrument was shifted after 5th and 11th readings.

0.585, 1.010, 1.735, 3.295, 3.775, 0.350, 1.300, 1.795, 2.575, 3.375, 3.895, 1.745, 0.635 and 1.605.

Draw up a page of level book and determine the RL of various points, if RL of first point is 134.00 m. **(16)**

OR

(b) (i) Explain the effects of curvature and refraction in levelling and their corrections. **(10)**

(ii) Discuss the uses of contours. **(6)**

14. (a) The following staff readings were observed successively with a level, the instrument having been move after third, sixth and eighth readings.

2.228 1.606 0.988 2.090 2.864 1.262

0.602 1.982 1.044 2.684 meters

Enter the above readings in a page of a level book and calculate R.L of points if the first reading was taken with a staff held on a bench mark of 432.384 m. **(16)**

OR

(b) (i) Explain the LS and CS method. **(8)**

(ii) Compare the rise and fall and line of collimation methods in reducing levelling observation. **(8)**

15. (a) Two straights meet at an apex angle 126° 48′ and are to be joined by a circular. curve of 300 m radius. Calculate the data necessary to set out the curve using a 30 m chord. Tabulate the data properly for field use. **(16)**

OR

(b) A 200 m length of straight connects two circular curves deflecting to the right. The radius of the 1st curve was 250 m and that of the second curve was 200 m. The central angle for the second curve was 15°58′. The combined curve is to be replaced by a single circular curve between the same tangent points. Find the radius of the curve. **(16)**
