Roll No. ....

2043

B. E. 3rd Sem. (Civil Engg.)
Examination – December, 2011

SURVEYING-I

Paper : CE-207-E

Time : Three hours]   *[Maximum Marks : 100*

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt any *five* questions. All questions carry equal marks. Answer briefly with neat sketches.

1. (a) What is the basic principle of Chain Surveying ? Discuss the errors in chaining.   **5, 5**

     (b) A surveyor measured the distance between two stations on a plan drawn to a scale of 10m to 1 cm and the result was 1200 m. Later, however, it was descoved that he used a scale of 20 m to 1 cm. Find the true distance between the stations.   10

2. (a) Define Local Attraction, True Bearing and Magnetic Declination. Explain the designation of bearings with neat sketches.   **6, 4**

2043-*150*-(P-3)(Q-8)(11)   **P. T. O.**

(b) The following bearings were observed with a compass.

AB 120° 30′ CD 310° 30′ BA 304° 30′ DC 135° 15′

BC 68° 15′   DA 200° 15′   CB 246° 0′   AD 17° 45′

Where do you suspect Local Attraction ? Find the correct bearings.

10

3. Discuss various methods of Plane Table Survey. Under which situation you will use Method of resection as compared to method of intersection.   20

4. What do you understand by Grade Contour ? Explain various methods of locating Grade Contour with advantages and disadvantages for a hilly terrain.   20

5. (a) What do you understand by the term 'Closing Error'? Where is it used ? How is it distributed among various/different sides of a traverse ?   10

  (b) How Tacheometric Constants are determined in field ? Discuss the procedure in detail.   10

6. (a) What are the elements of a simple circular curve ? Derive the formula for them.   10

  (b) Derive an expression for the length and shift of a transition curve required for a highway.   10

7. In levelling between two points A and B on opposite banks of a rivers, the level was set up near A and the Staff reading on A and B were 2.243 and 3.391 respectively. The level was then moved and set up near B and the respective staff readings on A and B were 1.889 and 3.041. Find the true difference of level of A and B.

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8. The following is the data relative to observations made on a vertically held staff with a tacheometer fitted with an analytic lens. The constant of the instrument was 100.

 (i)   Instrument Station 'O'

 (ii)   Height of Axis 1.56 at A

 (iii)

Staff Station	WCB	Vertical angel	Hair Readings
A	12°25′	0°–0′	1.88, 2.25, 2.62
B	60°45′	+15°–10′	1.83, 2.15, 2.47

 (iv) Reduced level of Instrument Station 'O' = 130.25

Calculate the distance AB and the reduced levels of A and B.

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