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Question Paper Code : 40776

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2018
Third Semester
Civil Engineering
CE 6304 – SURVEYING – I
(Regulations 2013)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions.

PART – A

(10×2=20 Marks)

1. What is meant by a well-conditioned triangle ?
2. Distinguish between survey Station and tie station.
3. What are the different sources local attraction ?
4. What are the advantages of a plane table surveying ?
5. What is Precise Levelling ?
6. What are the sources of error in levelling ?
7. What are the uses of a contour map ?
8. State Simpson's rule.
9. What are the various methods of doing the theodolite traversing ?
10. What are the different methods employed in tachometric survey ?

PART – B

(5×13=65 Marks)

11. a) A Chain line AB comes across a pond. Two points P and R are selected on the chain line on either side of the pond. A line PQ of 300 m length is set on the one side of the pond and another line PS of length 500 m is run on the opposite side of PQ. It is so aligned the points Q, R and S are on the same straight line. Calculate the approximate length of the pond, if QR and RS are measured as 150 m and 250 m respectively.

(OR)

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b) What are the sources of error in chaining? What precautions would you take to avoid them?

12. a) The following are the observed fore and back bearings of lines of a closed traverse. Correct them where necessary for local attraction.

Line	F.B	B.B
AB	292° 15'	111° 45'
BC	221° 45'	41° 45'
CD	90° 05'	270° 00'
DE	80° 35'	261° 40'
EA	37° 00'	216° 30'

(OR)

- b) i) Explain in detail about the sources of error in plane table survey. (6)
 ii) Explain the method of resection in plane table survey. (7)

13. a) The following consecutive readings were taken with the help of a dumpy level. 1.904, 2.653, 3.906, 4.026, 1.964, 1.702, 1.592, 1.261, 2.542, 2.006, 3.145.

The instrument was shifted after the fourth and seventh readings, the first reading was taken on the staff held on the B.M of R.L 100.000 meters. Rule out a page of level field book, enter the above readings there on. Calculate the R.Ls of the points and apply arithmetical check.

(OR)

b) A dumpy level was set up with its eye-piece vertically over a peg C. The height from the top of C to the centre of its eye piece was measured and found to be 1.578 m. The reading on the staff held on the peg D was 1.008. The level was then moved and set up likewise at the Peg D. The height of eye piece above D was 1.258 m and the reading on the staff held on the peg C was 1.812. Determine the true reduced level of peg D, if that of peg C was 163.373.

14. a) A reservoir of bottom size 35 m x 25 m is planned with a depth of 4 m. The side slope is 1 1/2 : 1. Calculate the quantity of earth to be excavated. Assume the surface of the ground to be level before excavation.

(OR)

b) A series of offsets were taken from a chain line to a curve boundary line at intervals of 20 m in the following order.

0, 7.2, 5.4, 6.0, 6.8, 7.4, 8.2, 0 metres.

Find the area between the chain line, the curved boundary line and the offsets by Trapezoidal rule and Simpson's rules.



15. a) A theodolite was set up at a distance of 200 m from a chimney and the angle of elevation to its top was $10^{\circ} 48'$. The staff reading on a B.M. of R.L 70.25 m with the telescope horizontal was 0.977. Find the reduced level of the top of the chimney.

(OR)

- b) Two observations are taken upon a vertical staff by means of a theodolite, of which the R.L of the horizontal axis is 254.30 m. In case of the first, the line of sight is direct to give a staff reading of 1.00 and the angle of elevation is $4^{\circ} 58'$. In the second observation, the staff reading is 3.66 m and the angle of elevations is $5^{\circ} 44'$. Compute the R.L. of staff station and its horizontal distance from the instrument.

PART - C

(1×15=15 Marks)

16. a) An observer standing on the deck of a ship just sees a light house. The top of the light-house is 42 metres above the sea level and height of the observer's eye is 6 metres above the sea level. Find the distance of the observer from the light-house.

(OR)

- b) It is desired to find the weight of the tape by measuring its sag when suspended catenary with both ends level. If a tape is 20 metre long and the sag amounts to 20.35 cm at mid-span under a tension of 100 N, what is the weight of the tape ?