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Question Paper Code: 33106

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2018

Third Semester

Civil Engineering

01UCE306 – SURVEYING - I

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 2 = 20 Marks)

1. What are arrows?
2. What do you mean by reciprocal ranging?
3. What is the difference between triangulation and traversing?
4. Discuss the three point method of resection.
5. List out the error in the leveling.
6. Define Bench mark.
7. Define contour.
8. Enumerate the instruments used to find the inclination of the contour gradient.
9. How the temporary adjustment of a Theodolite is carried out?
10. What are the purposes of Tacheometric surveying?

PART - B (5 x 16 = 80 Marks)

11. (a) (i) Explain the methods of chaining while there are obstacles such as building or river. (9)
- (ii) Describe the construction and working of an optical square with a neat sketch. (7)

Or

- (b) What are the accessories used for a chain survey? Explain its each function. (16)

12. (a) (i) The following are the bearings of the lines of a closed traverse ABCD. Calculate the interior angles of the traverse. (6)

| Line | Fore Bearing | Line | Fore Bearing |
|------|--------------|------|--------------|
| AB | N45° 10'E | CD | S9° 50'W |
| BC | S60° 40'E | DA | N80° 40'W |

- (ii) The following bearings were taken in traversing with a compass in a place where local attraction was suspected. (10)

| Line | Fore Bearing | Back Bearing |
|------|--------------|--------------|
| AB | S45° 30'E | N45° 30'W |
| BC | S60° 00'E | N60° 40'W |
| CD | S5° 30'E | N3° 20'W |
| DA | N4° 30'W | S56° 00'E |

Or

- (b) List the various types of errors in plane table surveying and also list out the precautionary measures to overcome them. (16)

13. (a) Following consecutive staffs reading were taken with a level along a sloping ground line *AB* at a regular distance of 20m by using 4m leveling staff 0.352, 0.787, 1.832, 2.956, 3.758, 0.953, 1.766, 2.738, 3.872, 0.812, 2.325 and 3.137 on *B*. Rule out a page of level field book, enter the above reading *RL* of point *A* is 320.288 Calculate *RL* of all points by rise fall system, and work out the gradient of line *AB*. (16)

Or

(b) (i) Discuss the effects of curvature and refraction in levelling and derive the expression for these corrections. (9)

(ii) Name the methods of contouring and explain the procedure of any one method. (7)

14. (a) Explain with neat sketches the characteristics of contours and uses of contours. (16)

Or

(b) (i) In a proposed hydro electric project a storage reservoir was required to store the capacity of 4.5 million cubic meter between lowest draw down and top water level . The areas contained within the stated contours and upstream faces of the dam were as follows: (10)

| | | | | | | | | | |
|------------------|-----|----|----|----|----|----|----|----|----|
| Contour | 100 | 95 | 90 | 85 | 80 | 75 | 70 | 65 | 60 |
| Area in hectares | 32 | 30 | 28 | 25 | 21 | 18 | 15 | 12 | 5 |

(ii) What is the difference between direct and indirect methods of contouring? (3)

(iii) What do you understand by interpolation of contours? (3)

15. (a) Explain the method of repetition and reiteration of measuring horizontal angle using theodolite. (16)

Or

(b) (i) Discuss the temporary adjustments of a transit theodolite. (9)

(ii) Describe the essential parts of a transit theodolite with neat sketch. (7)
