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**Question Paper Code: 33106**

B.E. / B.Tech. DEGREE EXAMINATION, MAY 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. Define surveying.
2. What is well conditioned triangle?
3. Define local attraction.
4. Discuss the three point method of resection.
5. List out the error in the leveling.
6. Define Bench mark.
7. Define contour.
8. Define contour gradient.
9. What are the sources of errors in theodolite?
10. What are the tacheometer constant?

PART - B (5 x 16 = 80 Marks)

11. (a) (i) Explain the basic principles of surveying. (8)  
(ii) Define chain surveying. What are the operations involved in chain survey? (8)

Or

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

12. (a) Define three point problem and how it is solved by tracing paper method. (16)

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) Explain, in details, the different types of leveling. (16)

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

Or

- (b) The following perpendicular offsets were taken at  $10m$  intervals from a survey line to an irregular boundary line. 3.25, 5.60, 4.20, 6.65, 8.75, 6.20, 3.25, 4.20, 5.65. Calculate the area using average ordinate rule, trapezoidal rule and Simpson's rule. (16)

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

Or

- (b) A tacheometer was set up at a station A and the readings on a vertically held staff at B were 2.255, 2.605 and 2.955, the line of sight being at an inclination of  $+8^{\circ}24'$ . Another observation on the vertically held staff at B.M gave the readings 1.640, 1.920 and 2.200, the inclination of sight being  $+1^{\circ}6'$ . Calculate the horizontal distance between A and B, and the elevation of B if the R.L. of B.M is 418.685 m. The constant of instrument were 100 and 0.3. (16)
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