Question Paper Code: 44106

B.E. / B.Tech. DEGREE EXAMINATION, DEC 2021

Fourth Semester

Civil Engineering

14UCE406 - SURVEYING -II

(Regulation 2014)

Duration: Three hours   Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. If R is the radius of the main curve, θ the angle of deflection, S the shift and L the length of the transition curve, then, total tangent length of the curve, is

    (a) *(R - S) tan θ/2 + L/2*   (b) *(R + S) tan θ/2 - L/2*
    (c) *(R - S) tan θ/2 - L/2*   (d) *(R + S) tan θ/2 + L/2*

2. An ideal vertical curve to join two gradients, is

    (a) parabolic   (b) circular   (c) elliptical   (d) hyperbolic

3. Difference between horizontal length and measured length along the cantenary is called

    (a) sag correction   (b) slope correction
    (c) pull correction   (d) alignment correction

4. The setting of points in the vertical direction is usually done

    (a) Boning rods and travellers   (b) Sight Rails
    (c) Slope rails or batter boards   (d) all the above

5. Systematic Error

    (a) it produces a serious effect on the final result
    (b) error that under the same conditions will always be of the same size and sign
    (c) errors that arise from inattention, inexperience, carelessness and poor judgment
    (d) all the above

6. Errors that arise from inattention, inexperience, carelessness and poor judgment or confusion in the mind of the observer
   (a) Accidental errors   (b) Mistakes
   (c) Systematic errors   (d) All the above

7. EDM is
   (a) Electromagnetic Distance Measurement
   (b) Electronic Distance Measurement
   (c) Elevation and Distance Measurement
   (d) Electronic Direct Measurement

8. Most advanced surveying instrument is
   (a) Theodolite   (b) Tachometer   (c) Total station   (d) Dumpy level

9. A survey which is observations of the heavenly bodies such as sun or any-other fixed star is done, is known as
   (a) Celestial survey   (b) Astrological survey
   (c) Photographic survey   (d) Astronomical survey

10. solar apparent time
    (a) calculation of the passage of time based on the Sun's position in the sky
    (b) calculation of the day time based on the Sun's position in the sky
    (c) calculation of the normal time based on the Sun's position in the sky
    (d) all the above

PART - B (5 x 2 = 10 Marks)

11. Classify the types of curves?

12. What is meant by Permanent Bench mark?

13. Define most probable Errors.

14. Write the Advantages of Total station survey.

15. State the differences between lunar tides and solar tides.

PART - C (5 x 16 = 80 Marks)

16. (a) Describe method of setting a simple circular curve by Rankine's deflection angle method.   (16)

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(b) Summarize briefly the procedures for setting out compound curve. (16)

17. (a) (i) Describe the satellite station and process of reduction to centre? (10)

(ii) Show the expression for reducing the angles measured at the satellite station to centre. (6)

Or

(b) From a satellite station S, 5.8 m from main triangulation station A, the following directions were measured. $A = 0^0 0$' 0"; $B = 132^0 18$' 30"; $C = 232^0 24$' 06"; $D = 296^0 06$' 11"; $AB = 3265.5$ m; $AC = 4020.2$ m; $AD = 3086.4$ m. Predict the directions of AB, AC and AD from the above given data. (16)

18. (a) Examine the most probable values of the angles A, B, C from the following observations at a station P.

$A = 38° 25$' 20" Weight 1

$B = 32° 36$' 12" Weight 1

$A+B = 71° 01$' 29" Weight 2

$A+B+C = 119° 10$' 43" Weight 1

$B+C = 80° 45$' 28" Weight 2 (16)

Or

(b) Explain in detail to determine the most probable value by the method of correlates. (16)

19. (a) Discuss about: (i) Traversing, Example of use of traversing. (ii) Classical traversing methods. (16)

Or

(b) (i) Discuss briefly about care and maintenance of total station instruments. (10)

(ii) Explain briefly about how traversing is done by using total station. (6)

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20. (a) What is a three point problem in hydrographic surveying? List the various solutions for the problem? Explain in detail. (16)

Or

(b) (i) List out the advantages of Echo sounding. (8)

(ii) What are the methods employed in locating soundings? (8)

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