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**Reg. No. :**

**Question Paper Code: 44016**

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2017

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. When *R* is the radius of the curve (in metres), *D* is the degree of curve (in degrees) and length of the chord is 30 *m*, then the relation between *R* and *D* is

(a) *R* = 1520/*D* (b) *R* = 1720/*D* (c) *R* = 4500/*D* (d) *R* = 5400/*D*

3. The operation of applying corrections to observed angles due to the eccentricity of station is termed as

(a) Reduction to center (b) Reduction to angle (c) True station (d) Reduced level

4. For a well conditioned triangle, no angle should be less than

(a) 20° (b) 30° (c) 45° (d) 60°

5. The point on the celestial sphere vertically below the observer's position, is called

(a) Zenith (b) Celestial point (c) Nadir (d) Pole

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. The instrument required for carrying out the tachometric survey

(a) Stadia rod (b) Telescope (c) Ranging rod (d) Vertical staff

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. Sounding pole cannot be effectively used, if depth of water more than \_\_\_\_\_ meter.

(a) 1 (b) 3 (c) 5 (d) 2

PART - B (5 x 2 = 10 Marks)

11. What is degree of curve?

12. What are the objectives of triangulation survey?

13. Define the term Most Probable Value.

14. Write the Advantages of Total station survey.

15. State the necessity of hydrographic surveys.

PART - C (5 x 16 = 80 Marks)

16. (a) List the various methods of setting out a simple circular curve. Explain briefly

the Rankine method of deflection angles. (16) Or

(b) (i) Explain two Theodolite method of setting out simple curve. (8)

(ii) Explain the different elements of a simple curve with neat sketch. (8)

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) Explain the classification of triangulation system. (16)

18. (a) Explain Briefly about various classifications of errors. (16) Or

(b) The following are the three angles α, β and y observed at a station P closing the horizon, along with their probable errors of measurement. Determine their corrected values.

α = 78° 12′ 12” ± 2”

β = 136° 48′ 30” ± 4”

y = 144° 59′ 08” ± 5” (16)

19. (a) List the components of total station? Describe them briefly and also tell about its care and maintenances. (16)

Or

(b) (i) Explain briefly the types of total station. (8)

(ii) Discuss the different sources of errors which are encountered in a total

station. (8)

20. (a) Discuss the types of celestial co-ordinate systems. (16)

Or

(b) What do you mean by soundings? Describe briefly the various methods of

locating soundings in hydrographic surveying? (16)