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**Question Paper Code: 44106**

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 2019

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)

- When the centres of the arcs lie on the opposite sides of the common tangent at the junction of the two curves, it is known as a
  - simple curve
  - vertical curve
  - compound curve
  - reverse curve
- 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
  - $R = 1520/D$
  - $R = 1720/D$
  - $R = 4500/D$
  - $R = 5400/D$
- Difference between horizontal length and measured length along the cantenary is called
  - sag correction
  - slope correction
  - pull correction
  - alignment correction
- For a well-conditioned triangle, no angle should be less than
  - $20^\circ$
  - $30^\circ$
  - $45^\circ$
  - $60^\circ$
- The point on the celestial sphere vertically below the observer's position, is called
  - zenith
  - celestial point
  - nadir
  - pole



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

17. (a) (i) How the triangulation systems are classified? Explain in detail. (8)

(ii) Calculate sag correction for a 30 m steel under a pull of 100 N in three equal spans of 10 m each. Weight of one cubic cm of steel = 0.078 N. Area of cross section of tape = 0.08 sq.cm. (8)

Or

(b) From a satellite station *S*, 5.8 m from main triangulation station *A*, the following directions were measured.  $A = 0^{\circ} 0' 0''$ ;  $B = 132^{\circ} 18' 30''$ ;  $C = 232^{\circ} 24' 06''$ ;  $D = 296^{\circ} 06' 11''$ ;  $AB = 3265.5$  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) Explain Briefly about various classifications of errors. (16)

Or

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

19. (a) (i) Explain briefly about the working principles of total station. (12)

(ii) List out various types of Total station. (4)

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)

20. (a) What do you mean by soundings? Describe briefly the various methods of locating soundings in hydrographic surveying? (16)

Or

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

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

