Reg. No. : | | | | | | | | | | |

Question Paper Code: 41146

B.E. / B.Tech. DEGREE EXAMINATION, MAY 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. The curve of varying radius is known as

   (a) simple curve (b) compound curve
   (c) reverse curve (d) transition cruve

2. The curve used for ideal transition curve is a

   (a) cubic parabola (b) clothoid spiral
   (c) cubic spiral (d) lemniscate

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

   (a) 20° (b) 30° (c) 45° (d) 60°

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. Closed contours of decreasing values towards their centre, represent

   (a) a hill (b) a depression
   (c) a saddle or pass (d) a river bed

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. On some total stations it is possible to detach the keyboard and interchange them with other total stations and with GPS receivers. This is called

(a) excluded surveying (b) Integrated surveying
(c) A or B (d) None of the above

8. A _____error exists on a total station if the 0o to 180o line in the vertical circle does not coincide with its vertical axis.

(a) tilting axis (b) horizontal collimation
(c) vertical collimation (d) (B) & (C)

9. Hydrographic surveys deal with the mapping of

(a) large water bodies (b) heavenly bodies
(c) mountainous region (d) canal system

10. 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

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)

Or

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

17. (a) After measuring the length of a baseline, the correct length of the line is computed by applying various applicable corrections. Discuss the following corrections and provide expressions for a. Correction for temperature. b. Correction for pull. c. Correction for sag d. Correction for absolute length e. Correction for slope. (16)

Or

(b) 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. (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 the various cases for the determination of most probable value. (16)

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

Or

(b) Illustrate the working principle and measuring principle of Electro optical surveying (Total Station) with neat sketches. (16)

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

Or

(b) Estimate the hour angle and declination of a star from the following data. Altitude of the star = 21o 30' Azimuth of the star = 140^{o} E Latitude of the observer = 48^{o} N. (16)