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Reg. No. :

Question Paper Code : 20319

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2022.

Third Semester

Civil Engineering

CE 8351 — SURVEYING

(Common to Environmental Engineering)

(Regulations 2017)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Mention the purpose of benchmark.

2. Differentiate between true bearing and magnetic bearing.

3. Write the basic principle followed in stadia method.

4. What are the factors on which the choice of contour interval depends?

5. Define "most probable value".

6. Mention the methods of establishing horizontal and vertical control.

7. What is meant by celestial equator?

8. Write the corrections applied to the observed altitude of the sun.

9. Mention the importance of selective availability in GPS.

10. Write the temporary adjustments of a total station.

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PART B — (5 × 13 = 65 marks)

11. (a) The following consecutive readings were taken with a level and a 5 m
          leveling staff an continuously sloping ground at a common interval of 20
          meters, 0.385 ; 1.030 :1.925; 2.825; 3.730; 4.685; 0.625; 2.005; 3.1101;
          4.485 the RI of the first point was 208.125 m. Rule out a page of level
          book and enter the readings. Calculate the R.L. "S of the points by rise
          and fall method also the gradient of the line joining the first and last
          point.   (13)

                                    Or

     (b) Describe the effects of curvature and refraction in leveling and their
          corrections.   (13)

12. (a) The following readings were taken on a vertical staff with a tacheometer
          fitted with analytic lens and having a constant of 100.

          Staff station   Bearing   Staff readings   Vertical angles

               A   47°10'   0.940 1.500 2.060   8°0'

               B   227°10'   0.847 2.000 3.153   -5°0'

          Calculate the relative level of the ground at A and B and the gradient
          between A and B.   (13)

                                    Or

     (b) Explain in detail the various permanent adjustments of Theodolite.   (13)

13. (a) Describe the classification of errors and error sources.   (13)

                                    Or

     (b) A satellite station S is 6.5 m from the main station A and the following
          observations were taken A = 0°0', B = 102°48', C = 256°12', D 324°6'. The
          length of AB, AC and AD were computed to be 1895 m, 2277 km 2522 m
          respectively. Determine the direction of AB, AC and AD.   (13)

14. (a) Explain in detail various sounding methods.   (13)

                                    Or

     (b) Determine the azimuth and altitude of a star from the following data:

          Declination of the star = 10°40S

          Hour angle of the star = 325°

          Latitude of the observer = 48°N.   (13)

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15. (a) (i) Discuss the maintenance of total station equipments. (7)

   (ii) Explain the steps to be carried out in triangulation survey. (6)

   Or

   (b) Explain with a neat sketch the concepts and the segments of GPS. (13)

PART C — (1 × 15 = 15 marks)

16. (a) Discuss the procedure to conduct survey of in a rural area using modern survey equipments. (15)

   Or

   (b) Discuss the field procedure involved in preparing a map of a proposed college building. (15)

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