

Reg. No. :

Question Paper Code : 90317

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 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. List the errors in compass survey.
2. Define leveling.
3. Enumerate the difference between theodolite and tacheometer.
4. Name the uses of contour maps.
5. Compare the systematic and accidental errors.
6. State the principle of least square.
7. Define Hydrographic Survey.
8. Name the two methods to find the latitude of a place.
9. List out the errors in total station.
10. Define GPS.

PART B — (5 × 13 = 65 marks)

11. (a) Discuss about the classification in Surveying.

Or

- (b) Explain the different sources of errors in leveling.

12. (a) The following observations were made with the tacheometer. Find the distance PQ and R.L of Q if the R.L of B.M is 100.

Instrument Station	Staff station	Vertical angle	Hair reading
P	B.M	+4°20'	1.700,2.400,3.700
P	Q	-3°40'	2.100,2.700,3.100

Or

- (b) Discuss the indirect methods of locating contours.

13. (a) Explain the corrections adopted while measuring the length of a baseline.

Or

- (b) Describe the triangulation adjustment and explain the different conditions

14. (a) Explain the methods of locating sounding in hydrographic surveying.

Or

- (b) Calculate the Sun's Azimuth and Hour angle at sunset at a place in Latitude 52°N, when its Declination is (i) 20°N and (ii) 14°S.

15. (a) Explain the fundamental measurement system of total station.

Or

- (b) Discuss in detail the components of GPS and its working principle.

PART C — (1 × 15 = 15 marks)

16. (a) Find the most probable values of the angles P and Q and the summation angle (P+Q) from the following observations:

$$\begin{aligned} P &= 52^{\circ}20'30'' \text{ Weight } 1 \\ Q &= 46^{\circ}28'25'' \text{ Weight } 2 \\ P+Q &= 98^{\circ}49'05'' \text{ Weight } 3 \end{aligned}$$

Or

- (b) Estimate the hour angle and declination of a star from the following data

$$\begin{aligned} \text{Altitude of the star} &= 21^{\circ}32' \\ \text{Azimuth of the star} &= 140 \text{ E} \\ \text{Latitude of the observer} &= 48 \text{ N} \end{aligned}$$