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Question Paper Code : 40697

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2021.

Fourth/Fifth Semester

Civil Engineering

GI 8491 – TOTAL STATION AND GPS SURVEYING

(Common to Geoinformatics Engineering)

(Regulations 2017)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Enlist the factors that affect the refractive index in total station.
2. How will you measure atmospheric parameters?
3. What are the source of errors in total station surveying?
4. List the different types of GPS receivers.
5. Differentiate between geoid and ellipsoid.
6. What is meant by anti-spoofing effect?
7. How will rectify the cycle slip error?
8. List the types of GPS observations.
9. What is Weisbach triangle?
10. How are tides formed?

PART B — (5 × 13 = 65 marks)

11. (a) Elaborate on advantages and disadvantages of recent total station instruments over conventional surveying instruments.

Or

- (b) How will you compute refractive index (RI) for various conditions? Explain in detail.

12. (a) Elaborate on the concept of measuring principle and working principle of different.

Or

- (b) Differentiate between electro-optical total station and microwave total station.

13. (a) Elaborate on different segments that are involved in GPS with neat sketches.

Or

- (b) State and explain Kepler's law of motion with respect to satellite orbital motion.

14. (a) Explain the various methods of GPS measurement with neat sketches.

Or

- (b) Explain the concept of parameter estimation in GPS. How will you download RINEX data format from GPS?

15. (a) How will measure the current and discharge in rivers using hydrographic surveying? Explain in detail.

Or

- (b) Illustrate the concept of tunnel alignment and setting out works that are involved in tunnel surveying.

PART C — (1 × 15 = 15 marks)

16. (a) What is meant by land record system in cadastral surveying? Explain it with a neat case study.

Or

- (b) You are given an area ABCDE where the line AE is missing from the closed traverse. How will you determine the missing line using total station, provided that the lines AB, BC, CD and DE are known?