Reg. No. :

Question Paper Code : X 20295

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2020
AND APRIL/MAY 2021
Fourth Semester
Civil Engineering
CE 6404 – SURVEYING – II
(Regulations 2013)
(Common to PTCE 6404 – Surveying – II for B.E. (Part-Time) – Civil Engineering – Second Semester – Regulations 2014)

Time : Three Hours | Maximum : 100 Marks

Answer ALL questions.

PART – A **(10×2=20 Marks)**

1. What is meant by phase of signal ?
2. What is the application Gale's table ?
3. List out the errors of measurements.
4. What is the principle of least squares ?
5. Compare the microwave and the electro – optical systems adopted in total station.
6. What is Total station ?
7. Write the principle of GPS.
8. Define triangulation.
9. Define Azimuth.
10. Explain the term Transition Curve.

PART – B **(5×13=65 Marks)**

11. a) i) What are signals ? Classify them, Enumerate the requirements to be fulfilled by signal. **(5)**

ii) A steel tape of nominal length 30 m was suspended between two supports to measure the length of a line. The measured length on a slope of 4° 25′ is 29.861 m. The mean temperature during measurement was 15°C and pull applied was 120 N. If standard length of the tape was 30.008 m at 27°C and the standard pull of 50 N. Calculate the correct horizontal length. Take the weight of the tape as 0.16 N, its cross sectional area equal to 2.75 m^2 co-efficient of thermal expansion = 1.2×10^{-5} per degree Celsius and $E = 2.05 \times 10^5$ N/m^2. **(8)**

(OR)

b) Write a note on the Triagulation figures and its types. Enumerate the various criteria for the selection of the figures. **(13)**

12. a) Find the most probable values of angles A, B and C of triangle ABC from the following observation equations :

A = 68° 12′ 36″

B = 53° 46′ 12″

C = 58° 01′ 16″ **(13)**

(OR)

b) An angle has been measured under different field conditions with results as follows :

28° 24′ 20″	28° 20′ 00″
28° 24′ 40″	28° 24′ 40″
28° 24′ 40″	28° 24′ 20″
28° 25′ 00″	28° 24′ 40″
28° 25′ 20″	28° 25′ 20″

Find (i) the probable error of single observation

(ii) Probable error of the mean. **(13)**

13. a) What is a Total Station ? List out the various operations that are possible with total stations. What are the advantages of using Total Stations ? **(13)**

(OR)

b) EDM has slope distance AB of 561.276 m. EDM instrument is 1.820 m above station A and the prism is 1.986 m above station B. The EDM is mounted on a theodolite whose optical center is 1.720 m above the station. The theodolite measured a vertical angle of +6° 21′ 38″ to target on prism pole; the target is 1.810 m above station B. Compute both the horizontal distance AB and elevation of station B given an elevation at A of 186.275 m. **(13)**

14. a) Explain satellite configuration and signal structure with neat sketches.

(OR)

b) What are the salient features of hand held and geodetic receivers ? Explain with neat sketches.

15. a) Two straight T_1V and T_2V having bearings of 50° and 110° respectively, are to be connected by a 5° curve (based on chord of 40 m). Due to inaccessible intersection point, the following traverse is run from a point P on the rear tangent to a point S on the forward tangent.

Line	Length (m)	Bearing
PQ	120	70°
QR	100	140°
RS	190	40°

The chainage of P is 1618.8 m. Determine the chainage P.I., P.C. and P.T.

(OR)

b) Briefly explain the applications of remote sensing.

PART – C **(1×15=15 Marks)**

16. a) Discuss the various steps in triangulation Survey. **(15)**

(OR)

b) What are the various applications of Hydrographic Surveying ? **(15)**

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