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Question Paper Code: U3106

B.E./B.Tech. DEGREE EXAMINATION, NOV 2024

Third Semester

Civil Engineering

21UCE306 - SURVEYING

(Regulations 2021)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (5 x 1 = 5 Marks)

1. What is the least count of Theodolite CO1- U
(a) 20' (b) 30'' (c) 20'' (d) 1°
2. The operation consisting of revolving the telescope through 180° in a vertical plane about its horizontal axis is called _____ CO1- U
(a) Transiting (b) Face right (c) Face left (d) Traversing
3. Among the classification of triangulation system, which posses the highest order? CO1- U
(a) Primary (b) Secondary (c) Tertiary (d) Quaternary
4. The data obtained from total station can be used in which among the following software directly? CO5- U
(a) Primavera (b) STAAD PRO (c) Autodesk Revit (d) Surfer
5. Remote sensing uses which of the following waves in its procedure? CO1- U
(a) Electric field (b) Sonar waves
(c) Gamma- rays (d) Electro-magnetic waves

PART – B (5 x 3= 15 Marks)

6. Define Surveying. CO1- U
7. Differentiate Transit and Non transit Theodolite. CO1- U
8. What is meant by triangulation? CO1- U

9. What is called anti spoofing?

CO5- U

10. Define aerial photogrammetry.

CO6- App

PART – C (5 x 16= 80Marks)

11. (a) Convert the following WCB to RB

CO2- App (16)

- (i) $22^{\circ} 30'$ (ii) $150^{\circ} 45'$ (iii) $241^{\circ} 00'$ (iv) $320^{\circ} 30'$
- (v) $32^{\circ} 30'$ (vi) $170^{\circ} 12'$ (vii) $211^{\circ} 54'$ (viii) $327^{\circ} 24'$

Explain it with line sketches

Or

(b) Convert the following RB to WCB.

CO2- App (16)

- (i) N $41^{\circ} 30'E$ (ii) S $64^{\circ} 45'E$ (iii) S $20^{\circ} 30'W$ (iv) N $72^{\circ} 00'W$
- (v) N $12^{\circ} 24'E$ (vi) S $31^{\circ} 36'E$ (vii) S $68^{\circ} 6'W$ (viii) N $5^{\circ} 42'W$

Explain it with line sketches

12. (a) The height of an embankment of an embankment of formation width 10 m with side slopes 1:5:1 are found to be 2m, 3m and 4m at 0 m, 30 m and 60 m chainages respectively. Determine the volume of the bank in this 60 m length by all methods assuming the ground as level in the transverse direction.

CO2- App (16)

Or

(b) Determine the multiplying constants of a tachometer the following observations were taken on a staff held vertically at distances, measured from the instrument.

CO2- App (16)

The focal length of the object glass is 20 cm and the distance from

Observation	Horizontal distance	Vertical angle	Staff intercept
1	50	$+ 3^{\circ} 48'$	0.500 m
2	100	$+ 1^{\circ} 06'$	1.000 m
3	150	$+ 0^{\circ} 36'$	1.500 m

the object glass to trunnion axis is 10 cm. The staff is held vertically at all these points. Find the multiplying constant.

13. (a) Explain various types of curves with neat sketch.

CO1- U (16)

Or

(b) What is meant by triangulation and briefly explain their types .

CO1- U (16)

14. (a) Explain in detail about the sources of errors in Total station and EDM

CO4- U (16)

Or

(b) Briefly explain three fundamental segments on which GPS works. CO4- U (16)

15. (a) List the application of remote sensing. CO5- U (16)

Or

(b) Explain in detail photogrammetric surveying. CO5- U (16)