30. a.	Discuss in detail different errors in GPS surveying.	12	5	3	1
	(OR)				
b.	Explain in detail the measuring and working principle of total station.	12	4	3	1
31. a.	What are all the different interpretation keys required to prepare a village map, with suitable example?	12	6	4	1
	(OR)				
b.	Describe stereoscope, and explain how to determine height in a 3D image?	12	3	4	1
32. a.	Explain the ideal remote sensing system and discuss the EMR interaction with atmosphere.	12	4	5	1
	(OR)				
b.	Elaborate different types of platform and discuss their specification.	12	5	5	1

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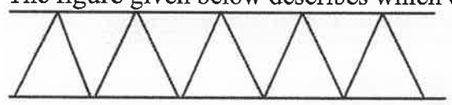
Reg. No.														

B.Tech. DEGREE EXAMINATION, MAY 2023
Sixth Semester

18CEO303J – MODERN TOOLS IN ENGINEERING SURVEYING
(For the candidates admitted during the academic year 2018-2019 to 2021-2022)

Note:
(i) **Part - A** should be answered in OMR sheet within first 40 minutes and OMR sheet should be handed over to hall invigilator at the end of 40th minute.
(ii) **Part - B & Part - C** should be answered in answer booklet.

Time: 3 hours Max. Marks: 100

		Marks	BL	CO	PO
	PART – A (20 × 1 = 20 Marks)				
	Answer **ALL** Questions				
1.	Which among the following indicates the correct necessity of classification of the triangulation system? (A) For measuring in any way (B) For accuracy in measurement (C) For covering the entire field (D) For reducing the work process	1	1	1	1
2.	The figure given below describes which of the following methods?  (A) Quadruple chain triangulation (B) Triple chain triangulation (C) Double chain triangulation (D) Single chain triangulation	1	2	1	1
3.	Length of base line in primary triangulation is given as (A) 1.5 – 5 km (B) 0.5 – 10 km (C) 5 – 15 km (D) 15 – 25 km	1	1	1	1
4.	In signal, pole signal can be used upto _____ km. (A) 30 (B) 15 (C) 12 (D) 6	1	2	1	1
5.	Which of the following doesn't describe the use of hydrographic surveying? (A) Laying an alignment (B) Making underground investigation (C) Nautical charts for navigation (D) Establishing mean sea level	1	1	2	1
6.	The process of measuring depth below the water surface is called _____. (A) Sounding (B) Chaining (C) Traversing (D) Compass traversing	1	1	2	1
7.	Which among the following can be possessed by the horizontal control? (A) Chaining (B) Triangulation (C) Theodolite (D) Compass	1	1	2	1

8. Gauge readings are obtained after _____. 1 1 2 1
(A) Compass survey (B) Chaining
(C) Sounding (D) Traversing

9. The main function of GPS system to provide _____. 1 1 3 1
(A) Global coordinates (B) Elevation above datum
(C) Time (D) Distance from known point

10. The operational name given to Indian GPS system by ISRO for use in India is 1 1 3 1
(A) IRNSS (B) GAGAN
(C) NAVIC (D) NAVSTAR

11. To locate the GPS receiver with real time movement, it requires signals from _____ satellites. 1 1 3 1
(A) 4 (B) 1
(C) 5 (D) 3

12. Modern day laser scanner can scan and collect details upto _____ points per second. 1 2 3 1
(A) 5000 (B) 25000
(C) 50000 (D) 500

13. The percentage of end overlap in successive photos in a single flight strip is 1 2 4 1
(A) 60 - 65% (B) 50 - 65%
(C) 65 - 70% (D) 20 - 35%

14. An aerial photograph of a terrain having an average elevation of 1400 m is taken at a scale of 1:7500. The focal length of camera is 15 cm. The flight altitude above MSL is 1 1 4 1
(A) 1225 m (B) 2525 m
(C) 3025 m (D) 3535 m

15. The lens used in aerial photogrammetry is having a maximum coverage capacity of _____ (in angles). 1 1 4 1
(A) 93° (B) 63°
(C) 53° (D) 98°

16. Flying height refers to _____. 1 1 4 1
(A) Upper portion of the exposure station (B) Bottom of the exposure station
(C) Depression of the exposure station (D) Elevation of the exposure station

17. The system that uses the sun as a source of electromagnetic energy and records the naturally radiated and reflected energy from the object is called 1 1 5 1
(A) GIS (B) GPS
(C) Passive RS (D) Active RS

18. The point just vertically below the observer's position, is celestial sphere is called _____. 1 1 5 1
(A) Celestial point (B) Nadir
(C) Zenith (D) Pole

19. What are the numbers or orbital planes and satellites in one orbit for a GPS respectively? 1 1 5 1
(A) 6 & 4 (B) 24 & 6
(C) 3 & 4 (D) 4 & 28

20. The minimum number of satellites needed for a GPS to determine its position precisely is 1 2 5 1
(A) 2 (B) 3
(C) 4 (D) 24

PART – B (5 × 4 = 20 Marks) Marks BL CO PO
Answer **ANY FIVE** Questions

21. Discuss in detail the hunter's short base method with neat sketch. 4 2 1 1

22. Illustrate with a figure about luminous signals and enlist the observation points required to be made. 4 3 1 1

23. How will you establish a horizontal control points in a hydrographic surveying explain with a suitable method? 4 4 2 1

24. Discuss the mechanical method of plotting of sounding. 4 3 2 1

25. Classify the types of total station and justify the user. 4 3 3 1

26. Compare and contrast the different types of resolution. 4 5 4 1

27. Enlist the types of orbits and explain any one in detail. 4 5 5 1

PART – C (5 × 12 = 60 Marks) Marks BL CO PO
Answer **ALL** Questions

28. a. Formulate a satellite station towards the right of triangulation station and derive the expression. 12 5 1 1

(OR)

b. Enlist the types of signals with neat sketches and illustrate its importance. 12 4 1 1

29. a. Discuss in detail about different methods of locating sounding in hydrographic surveying. 12 5 2 1

(OR)

b. Explain locating the sounding by locating from various store and boat method. 12 3 2 1