Total No. of Questions: 20

Enrollment No : _____

MEDICAPS UNIVERSITY

Faculty of Engineering

End Semester Examination May 2025

CE3CO01 Engineering Surveying

Programme	:	B.Tech.	**Branch/Specialisation**	:	CE
Duration	:	3 hours	**Maximum Marks**	:	60

Note: *All questions are compulsory. Internal choices, if any, are indicated. Assume suitable data if necessary. Notations and symbols have their usual meaning.*

Section 1 (Answer all question(s))

Marks CO BL

Q1. If the latitude of line is negative and departure of line is negative, the line lies in- **1 1 1**

- ○ First quadrant
- ○ Fourth quadrant
- ◉ Third quadrant
- ○ None of above

Q2. The sum of external angles of a closed traverse of sides "n" is: **1 1 1**

- ◉ (n+2) 180°
- ○ (n+3) 90°
- ○ (n+1) 90°
- ○ (n-2)180˚

Q3. In anallactic lens: **1 1 1**

- ○ K=1000 C=0
- ◉ K=100 C=0
- ○ K=0 C=1000
- ○ K=0 C=100

Q4. Which of the following is correct expression regarding tacheometer? **1 1 1**

- ○ K = f/i
- ○ C = f + d
- ○ $1/f = 1/f_1 + 1/f_2$
- ◉ All of the above

Q5. An ideal transition curve is: **1 1 1**

- ◉ A clothoid
- ○ A cubic parabola
- ○ A parabola
- ○ Bernoullis lemniscate

Q6. Rankine's method will come under which of the following classification? **1 1 1**

- ○ Linear method
- ○ Instrumental method
- ◉ Angular method
- ○ Offset method

Q7. For a well-conditioned triangle, no angle should be less than- **1 1 1**

- ○ 20˚
- ◉ 30˚
- ○ 45˚
- ○ 60˚

Q8. Which of the following is the most important process in the triangulation system? **1 1 1**

- ○ Towers
- ○ Signals
- ◉ Base line measurement
- ○ Reconnaissance

Q9. The process of measuring depth below the water surface is called- **1 1 1**

- ◉ Sounding
- ○ Chaining
- ○ Triangulation
- ○ Traversing

Q10. An Aerial photograph may be assumed as- **1 1 1**

- ◉ Central projection
- ○ Parallel projection
- ○ Orthogonal projection
- ○ None of these

Section 2 (Answer all question(s))

Marks CO BL

Q11. What is closing error in a traverse? Explain the Bowditch's method of adjusting a closing error. **4 1 1**

Rubric	Marks
Closing error in a traverse	1
The bowditch's method	3

Q12. (a) Define trigonometric levelling. Explain and derive the case in trigonometric levelling when the base of the object is accessible. **6 2 2**

Rubric	Marks
Definition of Trigonometric levelling	1
Derivation of the Case when the base of the object is accessible.	5

(OR)

(b) Describe latitude and departure. Also explain the computation of coordinates.

Rubric	Marks
Description of Latitude	1
Description of Departure	1
Explanation of computation of coordinates	4

Section 3 (Answer all question(s))

Marks CO BL

Q13. What are the advantages of tacheometric surveying? **3 1 1**

Rubric	Marks
1 marks to each advantages	3

Q14. (a) Explain in detail the use of anallactic lens in external-focussing telescope used in tacheometry. What are its advantages and disadvantages? **7 2 2**

Rubric	Marks
use of anallactic lens in external-focussing telescope	3
advantages	2
disadvantages	2

(OR)

(b) With usual notations, explain the tangential method of tacheometry when-

- Both angles are angle of elevation
- Both angles are angles of depression

Rubric	Marks
Both angles are angle of elevation	3.5
Both angles are angles of depression	3.5

Section 4 (Answer all question(s))

Marks CO BL

Q15. Explain any 4 elements of curve. **4 1 1**

Rubric	Marks
For each correct element give 1 mark.	4

Q16. (a) Explain compound curve and it elements with neat diagram. **6 4 4**

Rubric	Marks
Compound curve definition	1
Elements of compund curve	4
Neat sketch of compund curve	1

(OR)

(b) Mention the various methods of setting out a simple curve. Explain the method of setting out a curve by perpendicular offset.

Rubric	Marks
Various method of setting out a curve	2
Method of setting out a curve by perpendicular offset.	4

Section 5 (Answer all question(s))

Marks CO BL

Q17. How are the triangulation systems classified? Indicate the use of each system. **4 1 1**

Rubric	Marks
Each Classification of the triangulation 1 mark	3
uses of system	1

Q18. (a) Explain the various corrections to be applied to a measured base line of triangulation. **6 2 2**

Rubric	Marks
Corrections to be applied to a measured base line and expression for their nature and magnitudes 1 mark to each	6

(OR)

(b) Describe remote sensing in detail. Also explain its advantages and disadvantages.

Rubric	Marks
Explaination of remote sensing	4
advantages and disadvantages	2

Section 6 (Answer all question(s))

Marks CO BL

Q19. Define hydrographic survey. Explain the term sounding in hydrographic survey. **3 3 1**

Rubric	Marks
definitiojn of hydrographic surveying	1.5
definition of sounding	1.5

Q20. (a) Describe the various methods and equipment used in hydrographic surveying. **7 3 3**

Rubric	Marks
various methods of hydrographic survey	4
equipments used in hydrographic surveying	3

(OR)

(b) What is the principle of aerial photography? Also explain the tilt and height distortion.

Rubric	Marks
principle of aerial photography	2
tilt distortion.	2.5
height distortion.	2.5

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