Total No. of Questions: 22 **Total No. of Pages: 02**

Roll No. **Paper Code**
3E1215

B.Tech. III-Sem (Main & Back) January-2026
Civil Engineering
3CE4-05 Surveying
3E1215

Time : 3 Hours **Maximum Marks : 70**

Instructions To Candidates:
Attempt all Ten Questions from Part A. Five questions out of seven questions from Part-B and three questions out of five questions from Part-C

Schematic diagrams must be shown wherever necessary. Any data missing may suitably be assumed and stated clearly. Units of quantities used / calculated must be stated clearly. Use of following supporting material is permitted during examination (As mentioned in form No. 205)
1. NIL 2. NIL

Part A
(Answer should be given up to 25 words only)

All questions are compulsory. T-433 **10x2=20**

Q.1 What are the objectives of surveying?
Q.2 What do you understand by 'ranging'?
Q.3 Differentiate between WCB and RB.
Q.4 Define the term contour interval.
Q.5 What is meant by contour gradient?
Q.6 State the principle of tacheometric surveying.
Q.7 What do you understand by stadia wire?
Q.8 Enlist the applications of curve surveying.
Q.9 What is the use of aerial photograph?
Q.10 What do you understand by setting out works?

Part B
(Analytical/Problem solving questions)

Attempt any Five questions T-433 **5x4=20**

Q.1 The following bearings were observed with a compass survey:

Line	Fore Bearing
AB	60° 30'
BC	122° 0'
CD	46° 0'

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	DE	205° 30'
	EA	300° 0'

Determine the interior angles and plot the traverse for the same.

Q.2 Describe procedure to set out a horizontal angle by method of repetition.

Q.3 Describe various methods of contouring. Discuss the merits and demerits of each.

Q.4 Define the term: T-433

(a) True and magnetic bearing (b) Local attraction

(c) Back bearing (d) Magnetic declination

Q.5 The following readings were taken with a tacheometer with the line of sight horizontal on a staff held vertical: 0.950m, 1.285 m and 1.620m. Determine the horizontal distance from the instrument station to the staff station if k=100 and C=0.15m. Also determine the R.L. of the staff station if the R.L. of the instrument station is 101.580m and the height of trunnion axis is 1.460m.

Q.6 What are the different errors in theodolite work? How are they eliminated?

Q.7 Write short notes on:

(a) Terrestrial photogrammetry (b) Methods for laying out buildings

Part C

(Descriptive/Analytical/Problem Solving/Design question)

Attempt any three questions. T-433 **3x10=30**

Q.1 What are different tape corrections and explain that how are they applied?

Q.2 Explain how will you determine necessary data to set out a simple circular curve by using the method 'offset from extended chord'?

Q.3 The areas within the contour line at the site of reservoir and the face of the proposed dam are as follows:

Counter	Area (m^2)	Contour	Area (m^2)
101	1200	106	125000
102	12500	107	1875000
103	92200	108	2150000
104	150200	109	2510000
105	802500		

Taking 101 as the bottom level of the reservoir and 109 as the top level, determine the capacity of reservoir by trapezoidal and prismoidal rules / formula.

Q.4 Describe the 'height of instrument' and 'rise and fall' methods of computing the levels. Discuss the merits and demerits of each.

Q.5 What is total station? Explain the construction and working of total station with neat sketches.

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