

UTKAL GOURAV MADHUSUDAN INSTITUTE OF TECHNOLOGY, RAYAGADA

Internal Assessment

4th Semester – 2022 (summer), Civil Engg.

TH 3: SURVEYING -1

Full Mark: 20

Time: 1 hour

1. Answer any FIVE (2×5=10)
- a. State general principle of surveying.
 - b. Draw the symbol for- I. Cultivated land, ii. cutting
 - c. The magnetic bearing of a line AB is $135^{\circ}30'$. Find the true bearing, if the declination is $5^{\circ}15'W$.
 - d. Write the principle of plane table surveying.
 - e. Define grid reference in a map.
 - f. Explain the terms dip and declination in compass.
 - g. Explain index sketch.

2. Answer any TWO (5×2=10)
- a. A 20m steel tape was standardised at a temp. Of $20^{\circ}C$ and under a pull of 15kg. The tape was used in catenary at a temp. Of $30^{\circ}C$ under a pull of 10kg. The total wt and cross sectional area of tape are 400g. And $0.22cm^2$ respectively. Young's modulus and coefficient of thermal expansion are $2.1 \times 10^6 kg/cm^2$ and 11×10^{-6} per $^{\circ}C$ respectively. Find the correct horizontal distance.
 - b. Find corrected bearings from the following data-

Line	FB	BB
AB	$191^{\circ}45'$	$13^{\circ}0'$
BC	$39^{\circ}30'$	$222^{\circ}30'$
CD	$22^{\circ}15'$	$200^{\circ}30'$
DE	$242^{\circ}45'$	$62^{\circ}45'$
EA	$330^{\circ}15'$	$147^{\circ}45'$

- c. Describe the process to overcome any two obstacles in chaining.
- d. Describe the two point problem of plane table survey.
