

Maharashtra Institute of Technology, Aurangabad

(An Autonomous Institute)

END SEMESTER EXAMINATION

Second Year B.Tech (Civil Engineering) – Feb/Mar-2023

Course Code: CED202 Course Name: Surveying and Levelling

Duration: 2 Hrs Max. Marks: 50 Date: 06 Feb 2023

Instructions:

- i) All questions are compulsory
 ii) Assume suitable data wherever necessary and clearly state it
 iii) Figures to right indicate full marks

Q. 1	Answer any five(Marks:10)	Marks	CO								
a)	If the Representative Fraction (R.F.) of the drawing is 1:1000 m. What is its Scale?	2	CO1								
b)	State any two duties of the follower while chaining a survey line	2	CO3								
c)	If the F.B. of line PQ = N 35 45° W and F.B. of line PR = N 20 30° E Calculate the interior angle QPR	2	CO5								
d)	Distinguish between a Well conditioned triangle and ill conditioned triangle.	2	CO2								
e)	State the various methods of orientation of plane table.	2	CO2								
f)	Show the following topographical features using contour lines: 1. Hill 2. Vertical Cliff	2	CO1								
g)	State the various temporary adjustments of a Theodolite.	2	CO1								
h)	During horizontal angle measurement using 20 second vernier transit theodolite, one of the observation is recorded as 150° 59' 40". Write down the reading as seen on main scale and vernier scale of the theodolite.	2	CO1								
Q.2	<p>a)The observed for bearings of the sides of a triangle ABC are as follows:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Line</th> <th>F.B.</th> </tr> </thead> <tbody> <tr> <td>AB</td> <td>60° 00'</td> </tr> <tr> <td>BC</td> <td>130° 00'</td> </tr> <tr> <td>CA</td> <td>270° 00'</td> </tr> </tbody> </table> <p>Calculate the included angles and check for their sum.</p>	Line	F.B.	AB	60° 00'	BC	130° 00'	CA	270° 00'	8	CO5
Line	F.B.										
AB	60° 00'										
BC	130° 00'										
CA	270° 00'										
OR											
	b) Define the term local attraction. How will you detect the presence of local attraction?	4	CO3								

	c) What do you understand by magnetic declination? Distinguished between East and West declination. Draw a neat sketches to illustrate your answer	4	CO3
Q.3	a) State the various methods of plane table survey. Suggest the appropriate method of plane table survey to record the boundary of oval shape playground. Explain the suggested method in detail	8	CO4
	OR		
	b) Explain clearly two-point problem and how it is solved.	4	CO3
	c) State the merits and demerits of plane table survey	4	
Q.4	a) Explain with a neat sketch any four characteristics of contours.	8	CO1
	OR		
	b) What is indirect contouring? Explain with neat sketches any two methods of contouring.	8	CO5
Q.5	a) A dumpy level and a 4 m leveling staff was used for carrying out leveling operations and the following consecutive readings were recorded, 1.425, 2.360, 1.855, 2.650, 3.805, 2.115, 1.310 . The first readings was taken with a leveling staff held on a B. M. of R.L. 100.00 m. Rule out a page of a level book, and enters the readings and calculate the reduced levels of all points. Use rise and fall method and apply usual arithmetic checks.	8	CO5
	OR		
	b) Define the following terms: 1. Station 2. Bench Mark 3. Line of sight 4. Vertical axis	4	CO1
	c) An observer standing on the deck of a ship just sees a light house. The top of a light house is 35 m above sea level and the height of the observer's eye is 6 m above sea level. Find the distance of the observer from the light house.	4	CO5
Q.6	a) Write down the step by step procedure of measurement of Vertical angle using 20" vernier transit theodolite	4	CO2
	b) State what errors will be eliminated or minimized by method of repetition.	4	CO2
	OR		
	c) State and explain any one permanent adjust of 20 second vernier transit theodolite.	4	CO3
	d) Describe in brief trigonometrical levelling	4	CO2