

2026

G. S. Mandal's  
**Maharashtra Institute of Technology, Aurangabad**  
 (An Autonomous Institute)  
 END SEMESTER EXAMINATION  
Second Year B.Tech (Agri) – Feb/Mar-2023

Course Code: AED 204

Course Name: Surveying and Levelling

Duration: 2 Hrs

Max. Marks: 50

Date:

Instructions:

10 FEB 2023

- 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	BL	PI
a)	Define centering and Transiting of Theodolite	2	1	1	3.1.1
b)	1. Define Check lines 2. Define Tie Lines	2	1	1	3.1.1
c)	Define Arbitrary Bearing	2	1	1	3.1.1
d)	Explain Whole Circle Bearing System	2	2	2	3.1.1
e)	Explain Quadrantal Bearing System.	2	2	2	3.1.1
f)	The magnetic bearing of line is $48^{\circ}24'$ . Calculate the true bearing if the magnetic declination is $5^{\circ}38'$ East.	2	3	3	3.1.1
g)	Explain the condition to be fulfilled by survey lines and Survey Stations.	2	2	2	3.1.1
h)	Explain Correction for pull or Tension	2	2	2	3.1.1
Q.2	A 20m chain used for a survey was found to be 20.10 m at the beginning and 20.30m at the end of the work. The area of the plan drawn to a scale of 1cm=8m was measured and found to be 32.56 sq.cm. Find the true area of the field.	8	3	3	1.3.1
Q.3	Explain the Fixed Hair method (Stadia Method) of Tachometry and Derive the Equation for Horizontal Distance.	8	3	3	2.1.2
Q.4	Convert the following whole circle bearing to Quadrantal Bearing (R.B) 1) $22^{\circ}30'$ 2) $170^{\circ}12'$ 3) $211^{\circ}54'$ 4) $327^{\circ}24'$ Convert the following Quadrantal Bearing(R.B) to whole circle bearing 1) $N12^{\circ}24'E$ 2) $S 31^{\circ}36'E$ 3) $S68^{\circ}6'W$ 4) $N5^{\circ}42'W$	8	4	4	1.3.1

<p><b>Q.5</b></p>	<p>Plot the following cross staff survey of field ABCDEFG calculate its area</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>750</td><td>D</td></tr> <tr><td>650</td><td>210E</td></tr> <tr><td>C180</td><td>490</td></tr> <tr><td></td><td>300</td></tr> <tr><td>B160</td><td>250F</td></tr> <tr><td></td><td>180</td></tr> <tr><td></td><td>100</td></tr> <tr><td></td><td>50G</td></tr> <tr><td></td><td>0</td></tr> <tr><td></td><td>A</td></tr> </table>	750	D	650	210E	C180	490		300	B160	250F		180		100		50G		0		A	8	5	5	1.3.1																				
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<p><b>Q.6</b></p>	<p>Describe in detail</p> <ol style="list-style-type: none"> <li>1. Correction for Absolute Length</li> <li>2. Correction for temperature</li> <li>3. Plane table Surveying</li> <li>4. Contouring</li> </ol>	8	6	2	3.1.1																																								
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Note:- All course outcomes shall be addressed.