Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

IV SEMESTER B.TECH. (CIVIL) END SEMESTER MAKE UP EXAMINATIONS - JUNE 2019

SUBJECT: APPLIED SURVEYING [CIE 2204]

Date of Exam: /06/2019 Time of Exam: **9 AM - 12 Noon** Max. Marks: **50**

Instructions to Candidates:

- Answer ALL the questions & missing data may be suitably assumed

<table>
<tr><td>1A.</td><td>The following observations were made with a tacheometer fitted with an analectic lens, the staff being held vertically. The constant of the tacheometer is 100.
<table>
<tr><th>Inst. station</th><th>H.I.</th><th>Staff station</th><th>Vertical angle</th><th>Staff readings</th><th>Remark</th></tr>
<tr><td>P</td><td>1.355</td><td>BM</td><td>$-4^0 20'$</td><td>1.440,1.830,2.330</td><td rowspan="3">RL of BM=255.890</td></tr>
<tr><td>P</td><td>1.355</td><td>S</td><td>$+7^0 20'$</td><td>0.855,1.665,2.550</td></tr>
<tr><td>Y</td><td>1.550</td><td>S</td><td>$-8^0 24'$</td><td>1.775,2.320,2.925</td></tr>
</table>
Calculate the RL of Y and the distance between S and Y.</td><td>6</td><td>CO1</td></tr>
<tr><td>1B.</td><td>A vertical staff is observed with horizontal external focusing telescope at a distance of 115.270 m. Measurements are recorded as:
Objective to diaphragm = 240 mm
Objective to vertical axis= 160 mm,
If the readings taken on the staff were 1.070m, 1.645m, 2.220m, calculate distance between stadia lines and the constants K and C.</td><td>4</td><td>CO1</td></tr>
<tr><td>2A.</td><td>What is relief displacement? With the neat sketch derive an equation for relief displacement.</td><td>5</td><td>CO2</td></tr>
<tr><td>2B.</td><td>What is datum scale? And explain the different types of photograph in aerial photogrammetry.</td><td>5</td><td>CO2</td></tr>
<tr><td>3A.</td><td>A compound curve is made up of two arcs of radii 380m and 520m. The deflection angle of the compound curve is 105o and that of the first arc of radius 380m is 58o. The chainage at the first tangent point is 848.55m. Find the chainage at the point of intersection, common tangent point and forward tangent point.</td><td>5</td><td>CO3</td></tr>
<tr><td>3B.</td><td>With neat sketch explain the elements of simple circular curve in detail.</td><td>5</td><td>CO3</td></tr>
<tr><td>4A.</td><td>A curve is designated as a 4^o curve (20-m arc). The deflection angle is 40^o. Calculate the offset from long chord at 20m interval.</td><td>5</td><td>CO3</td></tr>
<tr><td>4B.</td><td>With the neat sketch explain the field procedure for setting out of simple circular curve by successive bisection of arc/chord.</td><td>5</td><td>CO3</td></tr>
<tr><td>5A.</td><td>What are different methods of sounding and explain in detail.</td><td>6</td><td>CO4</td></tr>
<tr><td>5B.</td><td>With the neat sketch explain the transfer of surface alignment to underground passageway</td><td>4</td><td>CO4</td></tr>
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