Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY
MANIPAL
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IV SEMESTER B.TECH. (CIVIL ENGINEERING)
END SEMESTER EXAMINATIONS, APRIL/MAY 2017
SUBJECT **APPLIED SURVEYING [CIE 2204]**
REVISED CREDIT SYSTEM
(28/04/2017)

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ALL** the questions.
- Missing data may be suitable assumed.

<table>
<tr><td>1A.</td><td>Derive an expression for distance and elevation for inclined line of sight when the staff is held normal to the line of sight.</td><td>6M</td></tr>
<tr><td>1B.</td><td>The stadia intercept read by means of a fixed hair instrument on a vertically held staff is 1.05m, the angle of elevation being 6°36'. The instrument constants are 100 and 0.4. what would be the total number of turns registered on a movable hair instrument at the same station for a I. 75m intercept on a staff held on the same point, the vertical angle in this case being 6°58' and the constants 1000 and 0.5.</td><td>4M</td></tr>
<tr><td>2A.</td><td>What is terrestrial photogrammetry? What is the basic principle of it? Explain the graphical method of obtaining horizontal and vertical angle measurements from terrestrial photographs.</td><td>5M</td></tr>
<tr><td>2B.</td><td>Two points A and B having elevations of 400m and 600m respectively above datum appear on the vertical photograph having focal length of 20cm and flying altitude of 2400m above datum. Their corrected photographic co-ordinates are as follows:

<table>
<tr><td rowspan="2">POINTS</td><td colspan="2">Photographic co-ordinates</td></tr>
<tr><td>x (cm)</td><td>y (cm)</td></tr>
<tr><td>A</td><td>+2.45</td><td>+1.36</td></tr>
<tr><td>B</td><td>-1.72</td><td>+2.65</td></tr>
</table>
Find the length of the ground line AB.</td><td>5M</td></tr>
<tr><td>3A.</td><td>Write a short note on setting out work of culverts.</td><td>3M</td></tr>
<tr><td>3B.</td><td>What are the various operations of setting out of tunnel? Explain the surface survey.</td><td>3M</td></tr>
<tr><td>3C.</td><td>With neat sketch explain the graphical method of solving three point problem III plotting the sounding. (any two methods)</td><td>4M</td></tr>
<tr><td>4A.</td><td>Two straights AB and BC intersect at a chainage of 4500m. The bearing of two straights AB and BC are 40° and 110° respectively. It is required to set out a 5° simple circular curve to connect the straight. Calculate all the data necessary to set out the curve by Rankine's method of deflection angles with an interval of 40m</td><td>7M</td></tr>
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4B.	Central angle of a non-parallel straights Δ_1 and Δ_2 and length of common tangent are given ($\Delta_2 > \Delta_1$). Find out the common radius R and chainages at starting and end point of a reverse curve.	**3M**
5A.	A 3°49'20" simple circular curve and deflection angle 80° was to be set out. The chainage of point of curve was 1020m. Due to inaccessibility problem it was required to rotate the forward tangent by 10° (clockwise) about the point of tangency. Find the new radius and chainage of the tangent point and that of point of intersection.	**6M**
5B.	Write a short note on Computing distance from the phase difference method in EDM.	**4M**