**PVP 14**

Code: CE3T5

**II B.Tech - I Semester–Regular/Supplementary Examinations**
**November 2018**

# SURVEYING
## (CIVIL ENGINEERING)

Duration: 3 hours Max. Marks: 70

PART – A

Answer ***all*** the questions. All questions carry equal marks
11x 2 = 22 M

1.

a) Enumerate different methods of determination of volume of earthwork.
b) State the various rules used to do balancing a traverse.
c) Enlist the sources of errors in a theodolite survey.
d) Differentiate between precision and accuracy.
e) What is the utility of an anallactic lens in a tacheometer?
f) Differentiate between Angle and Bearing.
g) Under what circumstance do you adopt reciprocal levelling?
h) Describe about uses of total station.
i) Distance formula for staff vertical position.
j) Differentiate between plunging and swinging of telescope.
k) What is sensitivity of a bubble tube?

## PART – B

Answer any ***THREE*** questions. All questions carry equal marks.

3 x 16 = 48 M

2. a) Explain briefly different types of chains. 8 M

   b) Describe different methods of distance measurement by using EDM. 8 M

3. a) What is a meridian? Differentiate between true, grid, magnetic and arbitrary meridians. 8 M

   b) The magnetic bearing of line as observed by the prismatic compass at a survey station is found to be $272^{O}$. If the local attraction at this station is known to be $5^{O}$ E and the declination is $15^{O}$ West, what is true bearing of the line? 8 M

4. a) Explain the method to find the volume of borrow pits from spot levels. 8 M

   b) A road embankment 40m wide at formation level with side slopes 1 to 1 and with an average height of 15m is constructed with an average gradient of 1 in 40 from contour 150m to 590m. The ground has an average slope of 10 to 1 in direction transverse to the centre line Determine (i) the length of the road (ii) volume of the embankment in cubic meters. 8 M

5. a) Two distances of 50 m and 80 m were accurately measured out, and the intercepts on the staff between the outer stadia webs were 0.496 at the former distance and 0.796 at the latter. Calculate the tacheometric constants. 8 M

b) A tacheometer was set up at station A and the following readings were obtained on a vertically held staff:

| Instrument Station | Staff station | Vertical angle | Staff readings | Remarks |
|---|---|---|---|---|
| A | B. M | $-2^{O}18'$ | 3.225, 3.550, 3.875 | R.L. of B.M = 437.655 m |
| | B | $+8^{O}36'$ | 1.650, 2.515, 3.380 | |

Calculate the horizontal distance from A to B and the R.L. of B, if the constants of the instrument were 100 and 0.4. 8 M

6. a) Draw a neat sketch of a simple circular curve and show its various elements thereon. 8 M

b) Two straights AB and BC are intersected by a line $D_1D_2$. The angles $BD_1D_2$ and $BD_2D_1$ are $40°30'$ and $36°24'$ respectively. The radius of the first arc is 600 m and that of the second arc is 800 m. If the chainage of intersection point B is 8248.10 m, find the chainages of the tangent point and the point of compound curvature? 8 M