

GUJARAT TECHNOLOGICAL UNIVERSITY**BE SEM-III Examination May 2012****Subject code: 130601****Subject Name: Surveying****Date: 11/05/2012****Time: 02.30 pm – 05.00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Explain the procedure of setting up of plane table **05**
 (b) Explain following terms (i) Compound curve (ii) Point of intersection (iii) Tangent Distance (iv) Mid Ordinate **04**
 (c) The following are the length and bearings of the sides of a closed traverse ABCD Find out the length and bearing of line DA **05**

Line	Length in meters	Bearings
AB	75.1	$139^{\circ} 30'$
BC	196.0	$35^{\circ} 55'$
CD	38.1	$339^{\circ} 10'$
DA	?	?

- Q.2** (a) Explain the procedure of setting out of Building Foundation . **07**
 (b) The deflection angle is 55° . calculate the length of the offsets at 20m interval measured from the tangent for setting out of curve of 150m radius if (a) the offsets are radial (b) Offsets are perpendicular to tangent **07**

OR

- (b) Explain methods of locating soundings **07**

- Q.3** (a) Explain procedure for area measurement by planimeter also discuss component parts of planimeter , multiplying constant and zero circle **07**
 (b) Derive formula for height h and distance D in trigonometric leveling when two instruments are set at same level . **07**

OR

- Q.3** (a) Explain two theodolite method of setting out of curve **06**
 (b) Explain different methods of adjusting closing error in theodolite traverse **04**
 (c) Describe how you will calculate area of traverse from coordinate **04**

- Q.4** (a) Enlist different methods of plane tabling and explain method of traversing **07**
 (b) A canal is running in cutting , bed width of canal is 10m and side slope 1 : 1 , if depth of cutting of canal at 30 m intervals are 1.1, 1.3, 1.4, 1.35, 1.45 , 1.6, 1.9, 1.8 , 2.1 . Calculate volume of cutting by trapezoidal and prismoidal formula **07**

OR

- Q.4** (a) What is designation of curve also discuss arch designation and chord designation **04**
 (b) Enlist different types of transition curve and explain any one **05**
 (c) In respect to calculation for setting out of combined curve If $\Delta = 34^{\circ} 30'$, radius of circular curve is 400m , length of transisiton curve 60m calculate **05**

shift s , tangent length and spiral angle

- Q.5 (a)** Determine the height of the pole above the ground on the basis of the following angles and elevation from two instruments station A and B in line with the pole angles of elevation from A to the top of bottom of pole = 29^0 and 20^0 Angles of elevation of B to top of bottom of pole = 36^0 and 27^0 Horizontal distance AB= 35m . The readings observed of staff at the B.M. with the two instrument settings are 1.38 and 1.19 m respectively what is horizontal distance of the pole from A ? **07**
- (b)** Draw sketch of Transit vernier theodolite and mention component parts and Enlist different axis of theodolite **07**
- OR**
- Q.5 (a)** Explain different instruments used in measurement of sounding **05**
- (b)** (i) Explain temporary adjustment of theodolite **05**
(ii) Enlist different type of permanent adjustments needed in theodolite
- (c)** Explain different vertical curves **04**
