

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-III (NEW) - EXAMINATION – SUMMER 2017****Subject Code: 2130601****Date: 31/05/2017****Subject Name: Surveying****Time: 10:30 AM to 01:00 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**Short Questions****14**

- 1 In plane table, the method used for connecting the traverse stations is called
(a) Radiation (b) Intersection (c) Resection (d) Traversing
- 2 The principle of plane tabling is
(a) Triangulation (b) Traversing (c) Parallelism (d) None of above
- 3 The face left position is called
(a) Telescope reverse (b) Telescope inverted (c) Telescope normal
(d) None of above
- 4 Turning telescope in vertical plane about its horizontal axis is called
(a) Transiting (b) Plunging (c) Swinging (d) Both a and b
- 5 Balancing of traversing is done according to
(a) Bowditch's rule (b) Transit rule (c) Third rule (d) All of above
- 6 If N be the number of lines of the traverse, then sum of measured interior angles should be equal to
(a) $(2N+4) \times 90^\circ$ (b) $(2N \times 4) \times 90^\circ$ (c) $(2N-4) \times 90^\circ$ (d) $(N+4) \times 90^\circ$
- 7 Trigonometric leveling is _____ method of leveling
(a) Direct (b) Indirect (c) Relative (d) Both a and b
- 8 Combined correction for curvature and refraction in linear measurement is given by
(a) $0.0785D^2$ (b) $0.0112D^2$ (c) $0.06735D^2$ (d) None of these
- 9 The radius of 1° curve is
(a) 1719m (b) 1917 m (c) 1918 m (d) 1819 m
- 10 The tangent line _____ the beginning of the curve is called back tangent
(a) after (b) before (c) between (d) all of these
- 11 Angle through which the forward tangent deflects is called
(a) Intersection angle (b) Deflection angle (c) Bisection angle
- 12 When the anchor point is inside the figure, the area of the zero circle is
a) added (b) subtracted (c) multiplied (d) divided
- 13 In Simpson's rule, the number of ordinates must be
(a) Odd (b) Even (c) none of above
- 14 The branch of surveying which deals with measurement in water bodies is known as
(a) tacheometric (b) hydrographic (c) theodolite traversing (d) all of these

- Q.2** (a) Derive formula to calculate area by
 (i) Mid ordinate rule (ii) Average ordinate rule **03**
 (b) Describe briefly the uses of various accessories of a plane table. **04**
 (c) Define (i) Latitude (ii) Departure (iii)Independent coordinates (iv) **07**
 Consecutive coordinates (v) Closing error (vi) Plunging (vii) Swinging
- OR**
- (c) Explain the basic procedure, instruments and materials required to set the **07**
 foundation of a building on the ground as per plan.
- Q.3** (a) Derive distance and height formula for base of the object is accessible. **03**
 (b) Explain the repetition method to measure horizontal angle. Illustrate with an **04**
 example.
 (c) Enlist different methods of plane tabling. Explain method of intersection. **07**
- OR**
- Q.3** (a) Explain sequential procedure of temporary adjustment of theodolite. **03**
 (b) List fundamental lines of theodolite and desired relationship between them. **04**
 (c) Enlist various methods of plane tabling. Explain method of Traversing with **07**
 neat sketch.
- Q.4** (a) List instruments used for sounding and explain any *one* with neat sketch. **03**
 (b) Explain two theodolite method of setting out of curve. **04**
 (c) The deflection angle is 50° . Calculate the length of the offsets at 20m interval **07**
 measured from the tangent for setting out of curve of 180m radius if, (a) the offsets
 are radial (b) Offsets are perpendicular to tangent.
- OR**
- Q.4** (a) Define transition curve. What are the requirements of a transition curve? **03**
 (b) What is designation of curve. Also discuss arch designation and chord designation. **04**
 (c) Two straight AB and BC intersect at a chainage of 4240.0 m. The deflection **07**
 angle is 45° and radius of curve is 344 m. Calculate, (i) Tangent length (ii) Length
 of curve (iii) Chainage of point of curve (iv) Chainage of Point of tangency (v)
 Length of long chord (vi) Degree of curve (vii) Apex distance
- Q.5** (a) Explain clearly the use of planimeter (with sketch) to calculate the area of an **03**
 irregular figure.
 (b) Explain the procedure of setting out of Building Foundation. **04**
 (c) What is capacity of a reservoir? Explain the procedure to workout reservoir **07**
 capacity
- OR**
- Q.5** (a) Describe how you will calculate area of traverse from coordinate. **03**
 (b) Explain various control points in setting of foundation. **04**
 (c) A canal is running in cutting, bed width of canal is 10m and side slope 1 :1.5 if **07**
 depth of cutting of canal at 30 m intervals are
 1.15, 1.35, 1.40, 1.30, 1.40,1.65, 1.95, 1.85 and 2.10.
 Calculate volume of earthwork by trapezoidal and Prismoidal formula.
