

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BARC—SEMESTER-- III EXAMINATION – SUMMER 2015**

**Subject Code: 1035006****Date: 21/05/2015****Subject Name: Surveying and Leveling****Time: 02.30pm-04.30pm****Total Marks: 50****Instructions:**

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

- Q.1** (a) Discuss Classification of surveying based on Instruments and Purposes **08**  
(b) Explain different methods of chaining on a sloping ground. Discuss the advantages and disadvantages of each method. **08**
- OR**
- (b) Show conventional symbols for the following objects to be shown in map: **08**  
(1) North line (2) River (3) Chain line (4) Footpath (5) Railway line (6) Electric post (7) Road and Rail level crossing (8) Embankment
- Q.2** (a) Write short note on (i) Optical square and (ii) prism square **08**  
(b) A 20 m chain was found to be 8 cm too long at the end of day's work after measuring 4250 m. If the chain was correct before the commencement of the work, find the correct length of the line. **08**
- OR**
- (b) Show a page of field book recorded for a survey line AB of 100 m showing details at different assumed chainages with offsets on either side, length of line etc.: (i) Building (ii) Trees (iii) Road crossing at chainage 50 m (iv) Well (v) North line **08**
- Q.3** (a) The offset from base line to boundary of a plot are taken as shown below at the interval of 10 m. Calculate the area between the base line and boundary by Simpson's rule and trapezoidal rule. The offsets are 0.46, 0.82, 1.27, 2.53, 4.29, 5.65, 4.78, 3.90, 2.64, 2.32, and 1.53. **09**  
(b) Write characteristics of contours. Draw contour lines for : (i) Hill (ii) Lake (iii) Valley (iv) Vertical cliff **09**
- OR**
- Q.3** (a) The following readings are taken with dumpy level and 4 m leveling staff. The Bench Mark R.L. is 100 m. Tabulate the readings and calculate the R.L s of the points by rise and fall method. Use rise and fall method. Show arithmetic check. The instrument was shifted after 3<sup>rd</sup> and 6<sup>th</sup> readings. **09**  
2.665, 3.225, 2.905, 1.850, 0.980, 2.620, 1.585, 0.960, and 0.425  
(b) What is closing error and explain how it can be adjusted by Bowditch's rule **09**

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