

B.E. (IVth Sem.) (CGPA) Civil Engg. Exam.-2015

SURVEYING-I

Paper : CE-402

Time Allowed : Three Hours

Maximum Marks : 60

Note : Attempt all questions.

All questions carry equal marks.

Unit-I

- Q.1 (a) Explain principles of surveying in detail with examples.
- (b) What do you understand by ranging, describe its various types.
- or
- (a) Discuss the classification of surveying based on instruments.
- (b) List the various errors in chaining. Explain any one in detail.

Unit-II

- Q.II (a) What is meridian ? Explain its types.
- (b) List advantages and disadvantages of plane table survey.

or

- (a) What is resectioning ? Explain with example.
- (b) What are temporary adjustments of compass ? Explain.

Unit-III

- Q.III (a) What is latitude and departure. How are they computed, what is their use in surveying ?
- (b) A traverse survey was conducted and the data obtained is given below. Find magnitude and direction of closing error if any—

Line	Length	Bearing
AB	156.5	78°40'
BC	178.2	152°32'
CD	234.8	251°18'
DA	202.6	356°15'

or

- (a) What is magnetic declination ? Explain how it is used to find true bearing.

- (b) Find the interior angles of the traverse ABCDA.
Apply usual checks—

Line	Bearing
AB	$70^{\circ} 30'$
BC	$120^{\circ} 45'$
CD	$223^{\circ} 30'$
DA	$320^{\circ} 47'$

Unit-IV

- Q.IV (a) What is profile levelling ? Explain with an example its application.
- (b) The following staff readings were taken during a levelling operation. Tabulate the result in the page of levelled page of field book. Find RL's of all the points. The instrument was shifted after 3rd and 7 m reading. The first reading was taken on a BM of RL = 100.00m, 0.685, 1.240, 0.865, 1.105, 1.680, 0.965, 2.855, 1.365, 0.740. *
- or *
- (a) What do you understand by temporary adjustments of theodolite. How it is done.
- (b) What do you understand by reduction of levels. Explain the various methods used for reducing levels.

Unit-V

- Q.V (a) Draw contours of—
(i) Hillock (ii) Pond (iii) Saddle

- (b) The offsets (in m) taken from chainline to a curved boundary are given below—

Chainage	Offset
0	2.5
5	3.8
10	8.4
15	7.6
20	10.5
25	9.3
35	5.8
45	7.8
55	6.9
65	8.4

Find the area between chain line and boundary line.

or

- (a) How would you obtain cross-section of a relief structure from contour map ?
- (b) Find the volume of the tank as shown below. The RL of base of tank is 121.56 m and that of ground at top level is 125.96 m.

