

SECOND SEMESTER DIPLOMA EXAMINATION IN CIVIL
ENGINEERING — APRIL, 2017

SURVEYING - I

[Time : 3 hours

(Maximum marks : 100)

PART — A

(Maximum marks : 10)

Marks

I Answer the following questions in one or two sentences. Each question carries 2 marks.

1. List the principles of surveying.
2. Define, bearing of a survey line.
3. What do you mean by bench mark ?
4. List the classification of levelling.
5. Write any two uses of contour map.

(5 × 2=10)

PART — B

(Maximum marks : 30)

II Answer *any five* of the following questions. Each question carries 6 marks.

1. Explain stepping method of chaining on sloping ground.
2. Distinguish between resection and intersection methods of plane table surveying.
3. Differentiate whole circle bearing and quadrantal bearing.
4. Explain the component parts of the telescope of a dumpy level.
5. Determine the combined correction for curvature and refraction for a distance of 3.8km and 3400m.
6. With the aid of a neat sketch, explain reciprocal levelling.
7. Write the procedure of collimation adjustment of a dumpy level.

(5 × 6 = 30)

PART --- C

(Maximum marks : 60)

(Answer *one full* question from each unit. Each full question carries 15 marks.)

UNIT—I

- III (a) Describe various instruments used for determining the length of a line by chaining. 9
- (b) Describe the accessories used in plane table surveying. 6

OR

- IV (a) Define survey station. List the points to be kept in mind while selecting the survey stations and arranging the frame work. 9
- (b) Explain different methods of ranging. 6

UNIT — II

- V (a) The following bearings were observed with a prismatic compass. Compute the interior angles and apply the check.

<i>Line</i>	<i>Bearing</i>
AB	60° 00'
BC	122° 30'
CD	45° 30'
DE	206° 00'
EA	300° 30'

- (b) Explain the procedure for the adjustment of closing error of a compass traverse by graphical method. 6

OR

- VI (a) The following interior angles were measured in a closed traverse. The bearing of the line AB was measured as 60° 00' with a prismatic compass. Calculate the bearings of all other lines, if $\angle A=140^\circ 00'$, $\angle B=90^\circ 45'$, $\angle C=61^\circ 00'$ and $\angle D=68^\circ 15'$. 9
- (b) Define the terms :
- | | |
|--------------------|-----------------------|
| (i) true bearing | (ii) magnetic bearing |
| (iii) magnetic dip | (iv) declination |
- 6

UNIT — III

- VII (a) The following staff readings were observed successively with a level, the instrument having been moved after third, sixth and eighth readings. 2.115, 1.605, 1.005, 2.190, 2.865, 1.255, 0.705, 1.985, 1.035 and 2.675m. Enter the readings in a level field book form and determine the reduced levels of the points by rise and fall method when the first reading was taken with a staff held on a bench mark of 535.000m. 9
- (b) Define the terms :
- (i) Level line (ii) Horizontal line (iii) Plumb line 6

OR

- VIII (a) The following consecutive readings were taken with a dumpy level and 4m levelling staff on continuously sloping ground at a common interval of 20m. 0.4000, 1.200, 1.625, 2.835, 3.700, 0.625, 2.105, 3.100 and 3.925. Rule out a page of level field book and enter the above readings. Calculate the reduced levels of all the points by height of collimation method and also find out the gradient of the line joining the first and last point. The reduced level of first point is 150.000m. 9
- (b) Describe different types of leveling staff. 6

UNIT — IV

- IX (a) An observer standing on the deck of a ship just sees the top of a light house which is 40m above sea level. If the height of the observer's eye is 8m above the sea level, determine the distance of the observer from the light house. 9
- (b) Define contour interval. List out the factors to be considered in selecting the contour interval. 6

OR

- X (a) Explain indirect methods of locating contours. 9
- (b) Explain profile levelling. 6