

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/
MANAGEMENT/COMMERCIAL PRACTICE — APRIL, 2019

SURVEYING - I

[Time : 3 hours

(Maximum marks : 100)

PART — A

(Maximum marks : 10)

Marks

I Answer *all* questions in one or two sentences. Each question carries 2 marks.

1. Differentiate base line and tie line.
2. Define magnetic dip.
3. Give the purpose of arithmetic check in leveling calculations.
4. Define fly leveling.
5. Draw contour representation of uniform sloping ground.

(5×2 = 10)

PART — B

(Maximum marks : 30)

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

1. Describe reference sketch for selection of stations for a survey work.
2. List methods of plane table survey and give the situation for selecting each method.
3. Tabulate the difference between the prismatic compass and survey's compass.
4. The fore bearing of one outside boundary of a foot ball court is $45^{\circ}20'$. Calculate fore bearings and back bearings of other three boundary lines taken in clock wise direction.
5. Explain back sight and fore sight in leveling survey and write the purpose of equalization of back sight and fore sight.
6. Explain sensitiveness of bubble tube.
7. Briefly explain uses of contour maps.

(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) Illustrate and explain types of obstructions both for chaining and vision while measuring a chain line. 8
- (b) Explain points kept in view in booking of field book in chain survey observations. 7

OR

- IV (a) List and explain instrument for setting out right angles in chain survey. 7
- (b) Explain with neat sketch the method of resection in plane table survey. 8

UNIT — II

- V (a) List and explain the different types of compass used in compass survey. 7
- (b) The following bearings were observed in running a compass traverse. Determine places where local attraction suspected. And also calculate corrected bearing.

<i>Line</i>	<i>Fore bearing</i>	<i>Back bearing</i>	
PQ	044° 30'	226° 30'	
QR	124° 30'	303° 15'	
RS	181° 00'	001° 00'	
SP	289° 30'	108° 45'	8

OR

- VI (a) Differentiate magnetic dip and declination. 7
- (b) The following are the bearing of the line of closed traverse ABCD. Sketch the traverse and calculate the included angle with suitable check.

<i>Line</i>	<i>Fore bearing</i>	
AB	N45° 10' E	
BC	S 60° 40' E	
CD	S 09° 50' W	
DA	N 80° 40' W	8

UNIT — III

- VII (a) List and explain different types of leveling staff used in leveling survey. 7
- (b) The staff readings were observed for a leveling survey work as follows :
1.820, 2.150, 1.230, 1.460, 0.905, 2.345, 1.995, 1.860. The staff readings at 3rd and 4th are inverted and after 5th reading instrument shifted. Reduced level of first staff point was 50.000. Calculate reduced level of all other points in collimation method. 8

OR

- VIII (a) Explain important axes of dumpy level and specify their relations. 7
- (b) The staff reading was observed for a leveling survey work as follows. 1.820, 2.150, 1.230, 1.460, 0.905, 2.345, 1.995, 1.860. The staff reading at 3rd and 4th are inverted. Reduced level of first staff point was 50.000. Calculate reduced level of all other points in collimation method. 8

UNIT — IV

- IX (a) Write the purpose of permanent adjustment in dumpy level. Explain different methods of permanent adjustment. 8
- (b) List and explain different methods of interpolation of contour. 7

OR

- X (a) Explain Indirect methods of contouring. 7
- (b) Prepare field book tabulation and cross section of road alignment at chainage 110.00 of road alignment with following field observation details.
Chainage 110.00
Reduced level of chainage 110.00 is 55.050
Staff observation at 110.00 chainage 1.440
Left side staff observations at 3.0m, 6.0m, 9.0m and 10.70m are 1.560, 1.630, 1.800 and 1.990 respectively.
Right side staff observations at 3.0m, 6.0m, 8.50m and 10.00 are 1.300, 1.10, 0.995 and 0.850 respectively.
Proposed road level at chainage 110.00 is 54.995. 8
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