

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/  
COMMERCIAL PRACTICE, APRIL-2021**

**SURVEYING - I**

[Maximum marks: 75]

(Time: 2.15 Hours)

**PART – A**

I (Answer any *three* questions in one or two sentences. Each question carries 2 marks)

1. Define the term ranging of a line
2. List the instruments used in plane table survey
3. Define Agonic lines
4. Name the different types of bench marks
5. Define contour line

(3 x 2 = 6)

**PART – B**

II (Answer any *four* of the following questions. Each question carries 6 marks)

1. What do you mean by reciprocal ranging? Explain with a neat sketch
2. List the different methods of orientation in plane table surveying and briefly explain orientation by back sighting.
3. Define Local attraction and how it can be detected
4. Tabulate the difference between the prismatic compass and surveyors compass
5. Discuss H.I method of booking and reducing the elevation of points from the observed staff readings.
6. List the various types of levelling staffs and give a brief explanation
7. Discuss the characteristics of countour

(4 x 6= 24)

**PART – C**

(Answer *any of the three units* from the following. Each full question carries 15 marks)

**UNIT –I**

III. (a) Discuss the principle on which chain survey is based on

(8)

- (b) List the factors that should be considered in deciding the stations in chain surveying (7)

**OR**

- IV. (a) Describe the different classifications of survey (8)

- (b) List the different methods of plane table surveying and write the advantage and disadvantages of plane table surveying with other surveying (7)

**UNIT-II**

- V. (a) Write short notes on

- (1) Magnetic declination (2) True bearing (3) Magnetic bearing (4) True meridian (8)

- (b) For the following given bearings, at what stations do you suspect local attraction. Determine the correct magnetic bearings if the declination was  $5^{\circ}10'E$ , What are the true bearings?

Line	F.B	B.B
AB	$75^{\circ}5'$	$254^{\circ}20'$
BC	$115^{\circ}20'$	$296^{\circ}35'$
CD	$165^{\circ}35'$	$345^{\circ}35'$
DE	$224^{\circ}50'$	$44^{\circ}5'$
EA	$304^{\circ}50'$	$125^{\circ}5'$

**OR**

- VI. (a) The following bearing were observed in running a closed traverse

Line	Fore bearing	Back bearing
AB	$71^{\circ}05'$	$250^{\circ}20'$
BC	$110^{\circ}20'$	$292^{\circ}35'$
CD	$161^{\circ}35'$	$341^{\circ}45'$
DE	$220^{\circ}50'$	$40^{\circ}05'$
EA	$300^{\circ}50'$	$121^{\circ}10'$

- Determine the corrected included angles (8)

- (b) The magnetic declination of a line AB is  $S 28^{\circ}30'E$ . Calculate the true bearing of a line if the declination is  $7^{\circ}30'W$  (7)

**UNIT-III**

- VII. (a) Briefly explain the temporary adjustments of a levelling instrument (8)

- (b) The following consecutive readings were taken with a level and 5 metre levelling staff on continuously sloping ground at a common interval of 20 metres. 0.385,1.030;1.925;2.825; 3.730;4.685;0.625;2.005;3.001;4.485.. The reduced levels of the first point was 208.125m. Rule out a level field book form and enter the readings. Calculate the reduced levels of the points by rise and fall method (7)

**OR**

- VIII.** (a) List the important axis of levelling instrument and write relations (8)  
(b) Briefly Explain rise and fall method and Height of instrument method and compare the two methods (7)

**UNIT-IV**

- IX.** (a) Discuss about reciprocal levelling (8)  
(b) An observer standing on the deck of a ship just sees a light house. The top of the light house is 32 metres above the sea level and the height of the observer is 8 metres above the sea level. Find the distance of the observer from the light house (7)

**OR**

- X.** (a) Define (1) Countour (2) Countour interval (3) Horizontal equivalent (4) Factors affecting selection of countour interval (8)  
(b) Discuss about the uses of countouring (7)

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