SURVEYING – I

Full Marks – 70

Pass Marks – 28

Time – Three hours

The figures in the margin indicate full marks for the questions.

Answer *all* the following questions.

1. (a) Differentiate between plane and geodetic surveying and explain the principles of surveying.   6

   (b) List out the different types of errors in chaining and explain cumulative and compensating errors.   4

2. (a) A 20m chain was found to be 10 cm too long after chaining a distance of 1800m. It was found to be 20 cm too long at the end of day's work after chaining a total distance of 3000m. Find the true distance if the chain was correct before the commencement of the work.   5

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(b) What do you understand by ranging out survey line in chain surveying ? Explain different methods of ranging out survey line.

5

3. The following bearings were taken in running a compass traverse :

Line	F.B.	B.B.
AB	124°30'	304°30'
BC	68°15'	246°0'
CD	310°30'	135°15'
DA	200°15'	17°45'

At what station do you suspect local attraction ? Find the correct bearings of the lines and also compute the included angles. 10

4. What is contour ? What are the characteristics of contours ? Also explain few uses of contour map.

10

5. Explain the following : 5×2=10

(i) Local attraction

(ii) Datum and Benchmark

(iii) Back sight and foresight

(iv) Contour gradient

(v) Fore bearing and back bearing.

6. What is reciprocal levelling ? Derive the required expressions for reciprocal levelling. Also describe under what conditions it is used.   10

7. Differentiate between the following :   5×2=10

    (i) Surveyer's compass and prismatic compass.

    (ii) Reduced bearing and whole circle bearing.