Note: Answer all questions.
All questions carry equal marks.
Assume suitable missing data, if any.

Q.1 [a]   Explain the principle used in chain surveying. What are the limitation of chain surveying? Explain briefly the situations where it can be suitably employed.

[b]   A survey line ABC crosses normally a river flowing EW. Points B and C being on the near and far banks respectively. A perpendicular BD 50 m long is set out at B. If the bearing of DC and DA are 35.25'. And 125.25'. Respectively, the chainage of A and B are 862 m, and 900 m respectively, find the chainage of C.

Q.2 [a]   Explain with the help of neat sketch the graduation of a prismatic compass and a surveyor compass?

[b] The bearing of the sides of a closed traverse ABCDEA are as follows

Side	FB	BB
AB	107.15	287.15'
BC	22.00'	202.00'
CD	281.30'	101.30'
DE	181.15'	1.15'
EA	124.45'	304.45'

Q.3[a]   Define the following terms :
(i) Radiation   (ii) Intersection   (iii) Resection

[b]   What is the basic difference in the above three methods

Q.4[a]   Describe a level field book for rise and fall methods and explain how the field notes are booked and the accuracy of the reduction of level checked ?

[b] The following consecutive reading were taken with a dumpy level and a 4m levelling staff on a continuously sloping ground at 30 m intervals:

0.680, 1.455, 1.855, 2.330, 2.885, 3.380, 1.055, 1.860, 2.265, 3.540, 0.835, 0.945, 1.530, and 2.250 the R.L. of the starting point was 80.750 m.

Rule out a page of level book and enter the above readings.

(i) Carry out reduction of heights by collimation method

(ii) Apply the arithmetic checks including the checks on I.S.

(iii) Determine the gradient of the line joining the first and last point

Q.5 [a] State the various permanent adjustments of a transit theodolite In the order in which they are carried out?

[b] Define contour. What do you understand by contour interval and on what factors does it depends?

Q.6 [a] Describe the method of setting out a simple curve using the knowledge of tachometry?

[b] Two straight intersect at chainage 2056.44 m and the angle of intersection is 120°. If the radius of the simple curve to be introduced is 600 m, find the following:

i) Tangent distance

ii) Chainage of the point of commencement

iii) Chainage of the point of tangency

iv) Length of the long chord.

Q.7 Write a brief note of any four of the followings?

(i) GTS BM

(ii) Local attraction

(iii) Total station

(iv) Hydrographic surveyor

(v) EDM

(vi) Plane Table Survey

(vii) Different type of chain