

B.E. (Min) Part-II 4th Semester Examination, 2010
MN-404:Survey Practice I

Full Marks 70

Time allowed: 3 hours

Use separate answer script for each half

FIRST HALF

Answer question no1 and any two from the rest.

1. The following consecutive readings were taken with a dumpy level:
0.694, 0.643, 1.896, 1.116, 1.694, 1.892, 0.582, 0.560, 1.332, 0.999, 0.835
The instrument was shifted after the fourth and the eighth readings. The first reading was taken on the staff held on the bench mark of R.L. 825.665. Rule out a page of a level field book and enter the above readings. Calculate the reduced levels of the points and show usual check. (13)

2. a) Define contour.
b) What are the characteristics of contour?
c) Explain methods of locating contour
d) Explain methods of interpolation of contour. (1+3+4+3 =11)

3. a) Write short notes on Profile leveling.
b) Explain the effect of curvature of the Earth and Refraction of light on leveling computations.
c) Find the correction for curvature for a distance of (i) 1.5 km and (ii) 900m. (3+4+(2x2)=11)

4. a) Name the equipment and accessories used in plane table survey.
b) Name different methods of plane table survey.
c) Describe any two methods of plane table survey. (2+2+7=11)

5. a) Write short notes on:
 - i) Backsight
 - ii) Bench mark
 - iii) Reciprocal leveling
b) In leveling between two points A and B on opposite banks of a river, the level was set up near A and the staff readings on A and B were 2.243 m and 3.391m respectively. The level was then moved and set up near B, and the respective staff readings on A and B were 1.889m and 3.041m. Find the true difference of level of A and B. ((1+3+3)+4 =11)

2nd Half

Question No. 6 and any two from the rests

6. a) Define- i) Line of Collimation ii) Transiting and iii) Face left observation
 b) What are the fundamental lines of a transit theodolite?
 c) State the steps of measurement of an angle using theodolite. (3*2+2+5)
7. a) What is magnetic declination?
 b) Convert WCB into Quadrantal bearings: i) $67^{\circ}32'$ ii) $131^{\circ}12'$ iii) $334^{\circ}52'$
 c) What are the cumulative errors in chaining?
 d) The plan of an old survey plotted to a scale of 10m to 1 cm was found to have shrunk so that a line originally 10 cm long was found to measure 9.8 cm. There was also a note on the plan that the 30m chain used in the survey was 3 cm too short. If the area of the plan measured now with a planimeter is 96.04cm^2 , determine the true area of the survey. (2+3-1+2+4)
8. The following bearings were taken in running an open traverse with a compass in a place where local attraction was suspected. At what stations do you suspect local attraction? Find the corrected bearings of the lines? (II)

Line	Bearing
AB	44°W
BA	$225^{\circ}20'$
BC	$96^{\circ}20'$
CB	$274^{\circ}18'$
CD	$30^{\circ}4'$
DC	$212^{\circ}02'$
DE	$320^{\circ}12'$
ED	$140^{\circ}12'$

9. a) How do you calculate angle from bearing?
 b) The following angles were measured in running a closed traverse ABCDE in a clockwise direction. Compute the bearings of the remaining sides of the traverse, given the observed bearing of AB was $10^{\circ}12'$. (4+7)

Station	Included angle (exterior)
A	$291^{\circ}33'$
B	$225^{\circ}13'$
C	$211^{\circ}36'$
D	$300^{\circ}26'$
E	$231^{\circ}12'$

10. Undernoted are details of a closed traverse. Calculate the area of traverse ABCD by co-ordinates. Tabulate your calculations in proper form.

Line	Bearing	Distance, m
AB	N 80° E	439
BC	Due South	488
CD	S 60° W	377
DA	N 10° W	609.5

(11)