Total No. of printed pages = 3

CT-302/Surveying-I/3rd Sem/2014/N

SURVEYING - I

Full Marks – 70

Pass Marks – 28

Time – Three hours

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

1. (a) Define contour gradient. Explain the factors on which the choice of contour interval depends. 5

   (b) Convert from one system to another : 5

   (i) $22^{\circ}30'$ (ii) $170^{\circ}12'$ (iii) $327^{\circ}24'$

   (iv) N $412^{\circ}24'$ E (v) S $68^{\circ}6'$ W.

2. The following consecutive readings were taken with an auto level : 10

   6.25, 4.90, 6.22, 8.41, 9.79, 6.63, 7.92, 8.25, 9.75, 10.25 metres.

   The level was shifted after 4th, 6th and 9th readings. The reduced level at first point was 100 ft. Rule out a page of a level field book. Use height of instrument method and apply the usual check.

[Turn over

3. Explain the characteristic features of contour plan. 10

4. (a) Define levelling. Explain the temporary adjustment of a level. 2+3=5

(b) A survey line BAC crosses a river, A and C being on the near and distant banks respectively. Standing at D, a point 50 metres measured perpendicularly to AB from A, the bearings of C and B are 320° and 230° respectively. AB being 25m. Find the width of the river. 5

5. The following fore and back bearings were observed in traversing with a compass in place where local attraction was suspected. 10

Line	F.B.	B.B
AB	38°30'	219°15'
BC	100°45'	278°30'
CD	25°45'	207°15'
DE	325°15'	145°15'

Find the corrected fore and back bearings of each line.

6. (a) Give the classification of survey based upon the nature of field survey. 5

(b) Find the back bearings of following lines :

(i) AB $12^{o}24'$

(ii) BC $119^{o}48'$

(iii) CD $266^{o}30'$

(iv) QR S $12^{o}24'$ E

(v) ST N $86^{o}12'$ W. 5

7. Distinguish between the following : $5 \times 2 = 10$

(i) True bearing and magnetic bearing

(ii) Fore bearing and back bearing

(iii) Metric chain and surveyor's chain

(iv) Level surface and horizontal surface

(v) WCB and QB systems.