

# CBCS SCHEME

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17CT34

## Third Semester B.E. Degree Examination, Dec.2018/Jan.2019 Surveying – I

Time: 3 hrs.

Max. Marks: 100

**Note: Answer any FIVE full questions, choosing ONE full question from each module.**

### Module-1

- 1 a. Define surveying. Explain the classification of surveying. (10 Marks)  
b. Explain the basic principles of surveying. (10 Marks)

OR

- 2 a. Explain reciprocal ranging. (06 Marks)  
b. Explain error due to in correct chain. (06 Marks)  
c. A 20m chain used for a survey was found to be 20.10m @ the beginning and 20.30m at the end of the work. The area of the plan drawn to a scale of 10cm = 8m was measured with the help of a planimeter and was found to be 32.56sq cm. Find the true area of the field. (08 Marks)

### Module-2

- 3 a. Discuss obstacles to chaining but not ranging with a neat sketch. (10 Marks)  
b. A survey line BAC crosses a river, A and C being on the near and distant banks respectively. Standing at D, a point 50m measured perpendicularly to AB from A, the bearing of C and B are  $320^\circ$  and  $230^\circ$  respectively AB being 25m. Find the width of the river. (10 Marks)

OR

- 4 a. Define : i) True meridian ii) True bearing iii) Magnetic meridian iv) Magnetic bearing . (04 Marks)  
b. Explain the concept of magnetic declination.. (06 Marks)  
c. The following are observed fore bearings of the lines i) AB  $12^\circ 24'$  ii) BC  $119^\circ 48'$  iii) CD  $266^\circ 30'$  iv) PQ N  $18^\circ 0'E$  v) DE  $354^\circ 18'$  vi) QR S  $12^\circ 24'E$  vii) RS S  $59^\circ 18'W$  viii) ST N  $86^\circ 12'W$ . Find their back bearings. (10 Marks)

### Module-3

- 5 a. The following bearing were observed with a compass. Calculate the interior angles

Line	AB	BC	CD	DE	EA
FB	$60^\circ 30'$	$122^\circ 0'$	$46^\circ 0'$	$205^\circ 30'$	$300^\circ 0'$

(10 Marks)

- b. The following interior angles were measured with a sextant in a closed traverse. The bearing of the line AB was measured as  $60^\circ 0'$  with prismatic compass. Calculate the bearing of all other line if  $\angle A = 140^\circ 10'$ ,  $\angle B = 90^\circ 8'$   $\angle C = 60^\circ 22'$   $\angle D = 69^\circ 20'$  (10 Marks)

OR

- 6 a. Discuss Bowditch's method of balancing the traverse. (08 Marks)  
 b. The following bearings were observed while traversing with a compass.

Line	FB	BB
AB	45°45'	226°10'
BC	96°55'	277°5'
CD	29°45'	209°10'
DE	324°48'	144°48'

Mention which stations were affected by local attraction and determine the corrected bearings. (12 Marks)

**Module-4**

- 7 a. Define : i) Levelling ii) Datum iii) Mean sea level iv) Bench mark. (04 Marks)  
 b. Explain diaphragm of telescope. (06 Marks)  
 c. The following nodes refer to reciprocal levels taken with one level.

Instrument at	Staff reading on		Remark
	P	Q	
P	1.824	2.748	P & Q = 1010m
Q	0.928	1.606	RL of P = 126.386

- Find : i) True RL of Q  
 ii) The combined correction for curvature of refraction  
 iii) The angular error in the collimation adjustment of the instrument. (10 Marks)

OR

- 8 a. Explain the temporary adjustment of a level. (08 Marks)  
 b. The following consecutive readings were taken with a level and 5m leveling staff on continuously sloping ground at a common interval of 20m i) 0.385 ii) 1.030 iii) 1.925 iv) 2.825 v) 3.730 vi) 4.685 vii) 0.625 viii) 2.005 ix) 3.110 x) 4.485.  
 The RL of the first point was 208.125m Rule out a page of a level field book and enter the above readings. Calculate the RL of the points by rise and fall method and also the gradient of the line joining the first and the last point. (12 Marks)

**Module-5**

- 9 a. Explain the method of locating contours. (10 Marks)  
 b. Explain with sketches of the user of contour maps. (10 Marks)

OR

- 10 a. Explain the working operations of plane tabling. (10 Marks)  
 b. What are two point problems? How are they solved. (10 Marks)

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