

## CBCS Scheme

USN

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

15CT34

Third Semester B.E. Degree Examination, Dec.2016/Jan.2017

### Surveying – I

Time: 3 hrs.

Max. Marks: 80

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

#### Module-1

- 1 a. Differentiate between plan and map. (04 Marks)  
b. Explain the basic principles of surveying. (06 Marks)  
c. Give the Broad classification of surveying. (06 Marks)

OR

- 2 a. What are the different types of chains and tapes used in chain surveying? (04 Marks)  
b. Explain the method of direct Ranging by line Ranger. (06 Marks)  
c. The length of a line measured with 20mt chain was 1341mt. the same line when measured with 30mt chain was 20cm too short was found to be 1350mt. determine the error in the 20mt chain. (06 Marks)

#### Module-2

- 3 a. With a neat sketch, explain the contention and working of an optical square. (06 Marks)  
b. Describe with a method, how to erect a perpendicular to a chain line from a point on it? (04 Marks)  
c. Two stations P and Q, on the main survey line, were taken on the opposite side of a pond on the right of PQ, a line PR 210mt lead was down and another line PS, 260mt long was laid down on the left of PQ. The points R, Q and S are on the same straight line. The measured lengths of RQ and QS are 15m and 75mt respectively. What is the length of PQ? (06 Marks)

OR

- 4 a. Differentiate between prismatic compass and surveyors compass. (06 Marks)  
b. Distinguish between :  
i) Magnetic bearing and true bearing  
ii) Whole circle Bearing and Reduced bearing  
iii) Isopare line and Agonic line. (06 Marks)  
c. Convert the following whole circle bearing to Quadrantal bearing.  
i)  $22^{\circ}30'$  ii)  $170^{\circ}12'$  iii)  $211^{\circ}54'$  iv)  $327^{\circ}24'$ . (04 Marks)

#### Module-3

- 5 a. What is traversing? Explain the significance of open and closed traverse in compass surveying. (04 Marks)  
b. Differentiate between  
i) Time meridian and magnetic meridian  
ii) Fore bearing and back bearing. (04 Marks)  
c. The following bearings were observed with a compass. Calculate the interior angles.

Line	AB	BC	CD	DE	EA
For Bearing	$60^{\circ}30'$	$122^{\circ}0'$	$46^{\circ}0'$	$205^{\circ}30'$	$300^{\circ}0'$

(08 Marks)

OR

- 6 a. What is meant by Local attraction? How Is it detected? (04 Marks)  
 b. Following are the observed bearing of a closed traverse.

Line	PQ	QR	RS	SP
FB	124°30'	68°15'	310°30'	200°15'
BB	304°30'	246°0'	135°15'	17°45'

- c. At what stations local attraction was suspected. Determine the correct bearing of the lines. (06 Marks)

Following are the observed length and bearings of a traverse ABCDEA, the length and bearing of line EA having bear omitted. Calculate the length and bearing of the lien EA.

Line	Length (m)	Bearing
AB	20400	87°30'
BC	226.00	20°20'
CD	187.00	280°0'
DE	192.00	210°30'
EA	?	?

(06 Marks)

**Module-4**

- 7 a. Define the following terms : i) Back sight ii) Fore sight iii) Banch mark iv) Reduced level. (04 Marks)  
 b. Explain the Temporary adjustments of Dumpy level. (06 Marks)  
 c. The following readings were observed successfully with a leveling instrument. The instrument was after shifted 5<sup>th</sup> and 11<sup>th</sup> readings. Draw a page of level book and determine the R.L of various point by H.I method of the R.L of the 1<sup>st</sup> point was 264.35mt.  
 i) 0.485      ii) 1.020      iii) 1.787      iv) 3.395      v) 3.875      vi) 0.360  
 vii) 1.305      viii) 1.785      ix) 2.675      x) 3.385      xi) 3.885      xii) 1.835 (06 Marks)

OR

- 8 a. Explain the Temporary adjustments of Dumpy level. (06 Marks)  
 b. List the types of leveling. (06 Marks)  
 c. The following notes refer to reciprocal levels taken with one level. (04 Marks)

Instruct @	Staff Reading on		Remarks
	P	Q	
P	1.824	2.748	Distance PQ = 1010m
Q	0.925	1.606	RL of P = 126.386m

Find :

- i) Time R.L of Q  
 ii) The combined correction for curvature and refraction  
 iii) The angular error in the collimation adjustment of the adjustment.

**Module-5**

- 9 a. List the advantages and disadvantages of plane table surveying. (08 Marks)  
 b. Explain Radiation method of plane table surveying with a neat sketch. (08 Marks)

OR

- 10 a. What is meant by orientation? List the different methods of orientation. (06 Marks)  
 b. Define a contour. List the uses of contour maps. (06 Marks)  
 c. Explain the characteristics of contour. (04 Marks)

\* \* \* \* \*