C.U.SHAH UNIVERSITY
Winter Examination-2018

Subject Name: Surveying-I

Subject Code: 4TE03SUR1   **Branch:** B.Tech (Civil)

Semester: 3   **Date:** 04/12/2018   **Time:** 02:30 To 05:30   **Marks:** 70

Instructions:
  (1) Use of Programmable calculator & any other electronic instrument is prohibited.
  (2) Instructions written on main answer book are strictly to be obeyed.
  (3) Draw neat diagrams and figures (if necessary) at right places.
  (4) Assume suitable data if needed.

Q-1		**Attempt the following questions:**	**(14)**
	a)	What is surveying?	**01**
	b)	What is scale?	**01**
	c)	What is the formula used to find the area of a trapezoid?	**01**
	d)	What is ranging?	**01**
	e)	What is revenue chain?	**01**
	f)	What is compass?	**01**
	g)	What is dip in a compass?	**01**
	h)	Define mean sea level.	**01**
	i)	Define bench mark.	**01**
	j)	Define axis of the altitude level tube.	**01**
	k)	What are independent co-ordinates?	**01**
	l)	Write the objective of box sextant.	**01**
	m)	Enlist the various methods of resection.	**01**
	n)	What is two-point problem in plane table survey?	**01**

Attempt any four questions from Q-2 to Q-8

Q-2		**Attempt all questions**	**(14)**
	(a)	Explain fundamental principles of surveying.	**05**
	(b)	A plan represents an area of 14143 m^2 and measures 8.5 cm x 6.5 cm. Find out R.F. of the scale.	**05**
	(c)	Differentiate between prismatic compass and surveyors compass.	**04**
Q-3		**Attempt all questions**	**(14)**
	(a)	Explain with sketch the use of cross staff.	**05**
	(b)	The coordinates of two points P and Q are as follows:	**05**

Point	Coordinates	
	Northing	Easting
P	581.5	424.2
Q	707.6	85.4

Find the length and bearing of line PQ.

	(c)	What are the object and uses of levelling?	**04**
Q-4		**Attempt all questions**	**(14)**
	(a)	Explain principles and uses of tangent clinometers.	**05**
	(b)	Discuss the advantages and disadvantages of plane table surveying.	**05**
	(c)	Differentiate between: Transit theodolite and Non-transit theodolite.	**04**

Q-5 **Attempt all questions** **(14)**
(a) What is local attraction in compass? How you can predict the same? **07**
(b) State and explain temporary adjustments of a dumpy level. **07**

Q-6 **Attempt all questions** **(14)**
(a) Explain step by step procedure to measure horizontal angle with reiteration method by theodolite. **07**
(b) The bearing of the sides of a traverse ABCDE are as follows. **07**

LINE	FB	BB
AB	97^0 15′	277^0 15′
BC	12^0 00′	192^0 00′
CD	271^0 00′	91^0 30′
DE	189^0 45′	9^0 5′
EA	124^0 45′	304^0 45′

Calculate the interior angles and correct angles of the traverse from the given observed bearings.

Q-7 **Attempt all questions** **(14)**
(a) Discuss the classification of surveying based on instruments used, methods used and nature of field. **07**
(b) Following is a page of level book. Fill in the missing readings and apply the usual checks. **07**

Station	B. S.	I. S.	F. S.	Rise	Fall	RL
1	?					150.000
2		2.457			0.827	?
3		2.400		0.057		?
4	2.697		?		?	148.070
5	?		2.051	0.646		148.716
6		2.500		1.068		149.784
7		2.896			?	149.388
8		?			0.124	?
9			2.672	0.348		149.612

Q-8 **Attempt all questions** **(14)**
(a) A traverse survey was conducted and the data obtained is given below in table. Find the magnitude and direction of the closing error if any. **07**
Traverse Data:

Line	AB	BC	CD	DA
Length	156.4	178.3	234.9	202.5
Bearing	78°42′	152°30′	251°20′	356°12′

(b) Describe various accessories required for plane table survey with neat sketch and also write their use. **07**