Enrollment No: _____ Exam Seat No: _____

C.U.SHAH UNIVERSITY
Winter Examination-2018

Subject Name : Surveying-II

Subject Code : 4TE04SUR1   **Branch :**B.Tech (Civil)

Semester : 4   **Date :**29/10/2018   **Time :**10:30 To 01:30   **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)	The sensitivity of a bubble tube can be increased by increasing the _____ of the tube.	01
	b)	What is main disadvantage of tacheometric surveying?	01
	c)	What is anallatic lens?	01
	d)	Draw the neat sketch of simple circular curve showing various elements of it.	01
	e)	Define sub chord in setting out of simple circular curve.	01
	f)	What is equilibrium cant?	01
	g)	What are the basic functions of an EDM instrument?	01
	h)	Define photo nadir point.	01
	i)	Define observed value of a quantity.	01
	j)	Define "Solar tide" and "Lunar tide".	01
	k)	Enlist the functions of soundings.	01
	l)	Define ecliptic.	01
	m)	Define terrestrial poles and equator.	01
	n)	Define celestial sphere.	01

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

Q-2		Attempt all questions	(14)
	(a)	What are the precautions to be taken during the permanent adjustments?	05
	(b)	Define the following terms in relation to circular curve with a neat sketch. (i) tangent distance, (ii) long chord, (iii) deflection angle, (iv) apex distance and (v) mid- ordinate.	05
	(c)	Derive relation between the degree of curve and its radius.	04
Q-3		Attempt all questions	(14)
	(a)	Write short note on geodimeter.	05
	(b)	Compute the values of following components of simple circular curve. (i) length of curve, (ii) tangent length, (iii) length of long chord, (iv) apex distance, and (v) mid-ordinate. Take radius of curve = 300m and deflection angle = 40°.	05
	(c)	List the various application of air photography.	04

Attempt all questions

Q.4 **(a)** A dumpy level was set up at C exactly midway between two pegs A and B **07**
100 m apart. The readings on the staff when held on the pegs A and B were
2.250 and 2.025 respectively. The instrument was then moved and set up at
a point D on the line BA produced and 20 m from A. The respective staff
reading on A and B were 1.875 and 1.670. Calculate the staff readings on A
and B to give a horizontal line of sight.

(b) Explain various methods of tacheometry and describe the advantages of **07**
tacheometric surveying.

Q-5 **Attempt all questions** **(14)**

(a) Determine the gradient from a point A to a point B from the following **07**
observations made with a tacheometer fitted with an anallactic lens. The
constant of the instrument was 100 and the staff was held vertically:

lnst. station	Staff point	Bearing	Vertical angle	Staff readings
P	A	134°	10° 32'	1.360. 1.915, 2.470
	B	224°	5° 6'	1.065, 1.885, 2.705

(b) Discuss in detail, Flight planning for aerial photogrammetry. **07**

Q-6 **Attempt all questions** **(14)**

(a) Two points A and B having elevation of 600 m and 300 m respectively **07**
above datum appear on the vertical photograph having focal length of 20 m
and flying altitude of 3000 m above datum. Their corrected photographic co-
ordinates are as follows:

Point	Photographic co-ordinates	
	x (cm)	y (cm)
A	+ 2.65	+ 1.36
B	- 1.92	+ 3.65

Determine the length of the ground line AB.

(b) What are the various types of errors in surveying measurements? Give one **07**
example of each. Define weight of an observation.

Q-7 **Attempt all questions** **(14)**

(a) List the various tide gauges and explain non-registering tide gauges. **07**

(b) Convert following hours into degree, minutes and seconds. **07**
(a) $8^h 49^m 13^s$
(b) $17^h 59^m 59^s$
(c) $23^h 59^m 59^s$

Q-8 **Attempt all questions** **(14)**

(a) Define GIS. Enlist key components of GIS. Explain applications of GIS in **07**
civil engineering.

(b) Adjust the following angles of closed horizon by distribution of error rule. **07**
A = 85° 32′ 51″   wt. 3
B = 115° 28′ 32″   wt. 2
C = 103° 16′ 25″   wt. 1
D = 55° 42′ 20″   wt. 4