Enrollment No: _____ Exam Seat No: _____

C.U. SHAH UNIVERSITY

Summer Examination-2019

Subject Name: Surveying-II
Subject Code: 4TE04SUR1 **Branch:** B.Tech (Civil)
Semester: 4 **Date:** 24/04/2019 **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) The stadia method in tacheometry is used to determine_____ 1
a) Horizontal angle b) Vertical angle
c) horizontal distance d) Horizontal and vertical distances

b) The additive constant in tacheometer would be…… when taking analytic lens. 1
a) 0 b) 50 c)100 d) 75

c) The centrifugal ratio is given by_____ 1
a) P X W b) P-W c) $\frac{W}{P}$ d) $\frac{P}{W}$

d) The length of transition curve is given by 1
a) L=n x e b) L=n/e c) L=n+e d) L=e/n

e) The sensitivity of a bubble tube can be increased by 1
a) increasing the diameter of the tube
b) decreasing the length of bubble
c) increasing the viscosity of the liquid
d) decreasing the radius of curvature of tube

f) Total angle of deflection of a transition curve is 1
a) spiral angle b) spiral angle/2
c) spiral angle/3 d) spiral angle/4

g) The satellite constellation of GPS consists of 1
a) 4 satellite b) 6 satellite c) 18 satellite d) 24 satellite

h) EDM in a total station measure directly 1
a) vertical angle b) horizontal angles
c) slope distance d) horizontal distances

i) Laser plumet in total station is used for 1
a) centering b) leveling c) orientation d) bisection of point sighted

j) What is the unit of sounding? 1
a) m/s c) m^2/s c) ampere d) Fathom

k) The usual longitudinal overlap in aerial photogrammetry to control 1
a) 25% b) 30% c) 50% d) 60%

l) In a tilted photograph, the relief displacement is radial from the 1
a) principal point b) isocenter c) nadir point d) homologous points

m) The branch of surveying which deals with water bodies is known as _____ 1

a) aqueous surveying b) topographic surveying

c) hydrographic surveying d) sea surveying

n) In India, the standard meridian is at the following longitudinal from Greenwich: 1

a) 5^h30^mE b) 5^h30^mW c) 7^h30^mE d) 7^h30^mW

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

Q-2 Attempt all questions (14)

a.) Following observations were taken to find out constants of Tacheometer **7**

Instrument station	Staff station	distances	Staff reading	
			Lower stadia	Upper stadia
o	A	150	1.255	2.750
	B	120	1.000	3.000
	C	250	0.750	3.255

b.) Compute the value of following components of simple circular curve. **7**

(i)Length of curve (ii) Tangent length (iii) Length of long chord (iv) Apex distance and (v) Mid-ordinate.

Take radius of curve =200m and deflection angle=65'

Q-3 Attempt all questions (14)

a.) Explain the theory of stadia tacheometry. **7**

b.) What is hydrography? What are its objectives? **4**

c.) Requirement of an ideal transition curve. **3**

Q-4 Attempt all questions (14)

a.) What is relief displacement? Derive an expression for the relief displacement in a vertical photograph. **7**

b.) What is transition curve? State the various types of transition curve with the help of a neat sketch. Explain briefly its necessity. **7**

Q-5 Attempt all questions (14)

a.) Describes the permanent adjustments required for the tilting level. **7**

b.) What is the principle of E.D.M? Discuss electromagnetic waves and electromagnetic spectrum. **7**

Q-6 Attempt all questions (14)

a.) The measured photo coordinates of images a and b of ground points A and B are x_a =+45.35mm; y_a =+37.41mm, x_b= - 40.16 mm; y_b= -45.65mm. Determine the ground coordinates of A and B and hence compute the horizontal length of line AB. **7**

The elevation of points A and B are respectively 200m and 150m above the datum and the flying height is 1500m above the datum. Take f =152.4mm.

b.) The standard meridian for India is 82°30' E. Find the local mean time the following places corresponding to the standard time of 18hr 35min00sec **7**

(a) 115° E (b) 35°W and (c) 35°E

Q-7 Attempt all questions (14)

a.) Describe Global Positioning System (GPS) in detail. **7**

b.) An image of the top of the hill is 96 mm from the principal point of the photograph. The elevation of the top of the hill is 500 m and the flying height is 4000 m above datum. Calculate the relief displacement. **4**

c.) What is sounding? List various methods of locating soundings in hydrographic Surveying. **3**

Q-8		**Attempt all questions**	**(14)**
	a.)	Define following Astronomical terms: (1) Celestial sphere, (2) Zenith, (3) Nadir (4) Lunar tide (5) solar tide (6) Hour Circle (7) Latitude	**7**
	b.)	Define GIS. Enlist key components of GIS. Explain applications of GIS in civil engineering.	**7**