

Enrollment No: _____ Exam Seat No: _____

C. U. SHAH UNIVERSITY

Winter Examination-2021

Subject Name : Surveying - I

Subject Code : 4TE03SUR1

Branch: B.Tech (Civil)

Semester : 3


Date : 13/01/2022

Time : 11:00 To 02:00

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) In surveyor's telescope, the convex lens nearest to the object is called..... 1
a) Eye piece b) Objective c) Diaphragm d) Surveyor lens
- b) The line at which the tunnel wall breaks from sloping outward can be given as 1
.....
a) Spring line b) Oval line c) Centre line d) Middle line
- c) The plate level can be centered with the help of _____ 1
a) Focusing screw b) Foot screw c) Tangent screw d) Clip screw
- d) Chains are made up of _____ 1
a) High steel carbon b) Galvanized mild steel c) Copper coated iron d) Iron
- e) The formula for finding area by the use of planimeter is _____ 1
a) $\Delta = M(F-I \pm 10N+C)$ b) $\Delta = M(F+I \pm 10N+C)$
c) $\Delta = M(F-I \pm 10N-C)$ d) $\Delta = M(F-I \pm 10N \pm C)$
- f) What type of ranging is done if both ends of surveying lines are visible? 1
a) Direct b) Indirect c) Reciprocal d) Unable to do
- g) Which of the following operation can be done clearly in case of plane table 1
surveying?
a) Area computation b) Sighting c) Contouring d) Traversing
- h) Two contour lines of different elevations unite to form one line only in the case 1
of _____
a) Hills b) Vertical cliff c) Horizontal cliff d) Overhanging Cliff
- i) Identify the following symbol. 1

a) Well b) Earthwork dam c) Boundary pillar d) Statue
- j) Which one of the following instruments can be used as a clinometer? 1
(a) Prism square (b) Line ranger (c) Abney level (d) Optical square
- k) Type of surveying in which the shape of the earth taken into account is..... 1



- a) Topographic Surveying b) Hydrographic Surveying
c) Geodetic Surveying d) Plane Surveying
- l) Method of intersection is also known as _____ 1
a) Resection b) Graphical triangulation c) Radiation d) Traversing
- m) Leveling deals with measurements in a _____ 1
a) Horizontal plane b) Inclined plane c) Vertical plane d) Both vertical and horizontal plane
- n) Which of the following can be used to sight two different objects simultaneously? 1
a) Compass b) Sextant c) Theodolite d) Abney level

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

Q-2 Attempt all questions (14)

- A Following are the staff readings observed with a level. First observation taken on TBM of RL. 175.00m. complete the field book and show necessary checks. 7

Station	B. S.	I. S.	F. S.	H.I.	R.L.	Remarks
1	2.225			?	?	B.M
2		1.605		?	?	
3	2.090		0.955	?	?	?
4		1.860		?	?	
5	0.600		1.260	?	?	?
6			0.985	?	?	

- B What is 'closing error'? What are the different methods of balancing the closing error in a closed traverse? Explain any one method. 7

Q-3 Attempt all questions (14)

- A Explain step by step procedure to measure horizontal angle with repetition method. 7
- B Differentiate between height of instrument method and rise and fall method. 4
- C Define back sight, intermediate sight and fore sight. 3

Q-4 Attempt all questions (14)

- A The observed bearings of the traverse are given below. Find out included angles. 7

LINE	FB	BB
AB	70 ⁰	250 ⁰
BC	110 ⁰	290 ⁰
CD	160 ⁰	340 ⁰
DE	220 ⁰	40 ⁰
EA	300 ⁰	20 ⁰

- B Discuss the classification of surveying based on instruments used and methods used. 7

Q-5 Attempt all questions (14)

- A The distance between two points on the ground was measured with a 20 m 7



chain and was found to be 1800 m. The same distance was measured with a 30 m chain and found to be 1740 m. If the 20 m chain was 5 cm too short, what was the error in the 30 m chain?

B Explain briefly the instruments used in chain surveying. 7

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

A Explain various minor instruments used in surveying. 7

B Explain various obstacles in chaining and illustrate the procedure to solve one case in each obstacle. 7

Q-7 **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.

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. 7

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

A Explain with sketches, the radiation method of locating a point by plane table survey. 7

B Explain setting out work for Bridge. 7

