

C. U. SHAH UNIVERSITY

Winter Examination-2020

Subject Name : Surveying-I

Subject Code : 4TE03SUR1

Branch: B.Tech (Civil)

Semester: 3

Date: 12/03/2021

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)	Give the following definitions 1) Prolong survey line 2) Face left observation 3) Mean sea level 4) Datum 5) Negative declination 6) Agonic line	6
(B)	Give the functions of followings: 1) Plumb bob, 2) Arrows, 3) Pegs	3
(C)	Draw the sketch of Boning rods and give it definition.	2
(D)	Draw the sketch of Travellers and give it definition.	2
(E)	What is parallax in theodolite survey?	1
Attempt any four questions from Q-2 to Q-8		
Q-2	Attempt all questions	(14)
(A)	In levelling between two points A and B opposite banks of a river, the level was set up near A, and the staff readings on A and B were 1.285 m and 2.860 m respectively. The level was then moved and set up near B and respective readings on A and B were 0.860 m and 2.220. find the true difference of level between A and B.	4
(B)	Explain the rise and fall methods.	4
(C)	Explain clearly, with the help of illustrations, how a traverse is balanced in theodolite survey?	6
Q-3	Attempt all questions	(14)
(A)	Explain the necessity of magnetic needle in the compass.	4
(B)	How would you orient in direction a chain survey plot on the drawing sheet?	10
Q-4	Explain the Lehmann's method in details with sketches.	(14)
Q-5	Attempt all questions	(14)
(A)	Compare the plane table survey with other survey methods.	8



- (B) How a horizontal angle can be set out by method of repetitions in theodolite survey? **6**
- Q-6** **Attempt all questions** **(14)**
- (A) Explain in details the setting out foundation trenches of buildings. **8**
- (B) The distance between the points measured along a slope is 428 m. Find the horizontal distance between them if (a) the angle of slope between the points is 8° (b) the difference in level is 62 m (c) the slope is 1 in 4. **6**
- Q-7** **Attempt all questions** **(14)**
- (A) The following interior angles in table were measured with sextant in a closed traverse. The bearing of the line AB was measured as 60° with prismatic compass. Calculate the bearings of all other lines following by given angle. **8**
- | No. | Name of angle | Measured Angle |
|-----|---------------|----------------|
| 1 | A | $140^\circ 0'$ |
| 2 | B | $99^\circ 8'$ |
| 3 | C | $60^\circ 22'$ |
| 4 | D | $69^\circ 20'$ |
- (B) Describe the following accessories used in plane table surveying. **6**
- 1) Plumbing fork
 - 2) Telescopic alidade
 - 3) Spirit level
- Q-8** **Attempt all questions** **(14)**
- (A) Enlist the possible operations by theodolite and explain prolong a straight line operation by theodolite. **8**
- (B) Distinguish between the followings: **6**
- (1) Line of collimation and line of sight
 - (2) Cross section and longitudinal section
 - (3) Level surface and horizontal plane.

