C.U.SHAH UNIVERSITY
Summer Examination-2020

Subject Name : Surveying-I

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

Semester : 3   **Date : 03/03/2020**   **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 dip in compass?

  b)   Define Azimuth.

  c)   Draw contours for hillock.

  d)   List the fundamental axis of theodolite.

  e)   What is well-conditioned triangle?

  f)   Define levelling.

  g)   Write down the various obstacles in chaining.

  h)   Define: True meridian.

  i)   Enlist the various accessories of a plane table.

  j)   Write the objective of box sextant.

  k)   What is the formula used to find the area of a trapezoid?

  l)   Define isogonic line.
  m)   Enlist the various methods of resection.

  n)   Define geodetic surveying.

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

Q-2   **Attempt all questions**   **(14)**
  (a)   What is ranging? Enumerate various methods of ranging? Explain with neat   **07**
         sketch the procedure for indirect ranging?

(b)	Draw conventional signs used in surveying for: (i) River, (ii) Wall and gate and (iii) Oil well.	**03**
(c)	A steel tape was standardized as 30.00m at 18° C temperatures. A line was measured as 480.0m at mean temperature of day as 30^0C. Calculate the true length of line, if coefficient of thermal expansion for steel is 0.000012 per ^{0}C rise in temperature.	**04**

Q-3	**Attempt all questions**	**(14)**
(a)	What is 'closing error'? What are the different methods of balancing the closing error in a closed traverse? Explain any one method.	**07**
(b)	What is local attraction in compass? How you can predict the same?	**07**

Q-4	**Attempt all questions**	**(14)**
(a)	Differentiate between plane and geodetic surveying	**04**
(b)	Discuss the classification of surveying based on; (i) instruments used, (ii) methods used, (iii) Purposes or objects, (iv) nature of field.	**07**
(c)	Calculate the error due to curvature of earth in the measurement if the distance measurement is limited to 100 km.	**03**

Q-5	**Attempt all questions**	**(14)**
(a)	Differentiate between height of instrument method and rise and fall method.	**04**
(b)	What are the uses of contour maps?	**05**
(c)	State and explain temporary adjustments of a dumpy level.	**05**

Q-6	**Attempt all questions**	**(14)**
(a)	Explain vertical angle measurement using theodolite.	**07**
(b)	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'

Q-7	**Attempt all questions**	**(14)**
(a)	Describe various accessories required for plane table survey with neat sketch and also write their use.	**07**
(b)	Explain principles and uses of planimeter.	**05**
(c)	Differentiate between Fore Sight (FS) and Back Sight (BS).	**02**

Q-8	**Attempt all questions**	**(14)**
(a)	Define three-point problem and show how it may be solved by tracing paper method.	**07**
(b)	Explain the procedure for setting out a dam.	**07**