Enrolment No._____ Student sign:-_____

GUJARAT TECHNOLOGICAL UNIVERSITY

Mahatma Gandhi Institute of Tech. Education & Research Center, Navsari

B. E. F. Y. (SEM – II) MID SEMESTER EXAMINATION - MARCH 2009

Subject Elements of Civil Engineering.

Center Code:033

Date: 25/03/09 **Time: 90 Minutes** **Max. Marks: 40**

Q.1

(a) Fill in the blanks. (any five). **[05]**

1. **In optical square angle between horizon glass & Index glass is _____**
2. **List count of prismatic compass is _____.**
3. **The measured length of line is more than actual length of line, the error is _____.**
4. **The fixed reference line is known as _____.**
5. **The reduced level of line of collimation is known as _____.**
6. **The fixed point of known R.L. above datum is known as _____.**
7. **An imaginary line passing through points of equal reduced level is known as _____.**

(b) A line was measured by a 20 m chain was accurate before starting the day's work. After chaining 800m, the chain was found to be 5 c.m. too long. After chaining a total distance of 1675 m, the chain was found to be 13 c.m. too long, Find the true distance of the line. **[07]**

Q.2

(a) Do the following (any two) **[08]**

1. **Write classification of surveying.**
2. **Write in brief for prismatic compass.**
3. **Write about declination and it's types.**

(b) Following bearings were observed in a closed traverse ABCDA. Find the included angles and correct them if necessary. **[06]**

Line	F.B.	B.B.
AB	321° 30'	144° 00'
BC	209° 30'	27° 30'
CD	134° 15'	312° 45'
DA	54° 45'	235° 45'

OR

Q.2

(a) Do the following (any two) **[08]**

1. **Discuss obstacles in chaining & ranging .**
2. **Describe temporary adjustment of prismatic compass.**
3. **Write in brief for surveyor's compass.**

(b) **The following bearings were observed while traversing with compass.** **[06]**

Line	F.B.	B.B.
AB	134° 30'	314° 30'
BC	220° 00'	41° 00'
CD	290° 30'	111° 00'
DA	55° 30'	234° 00'

Mention which stations were affected by local attraction and determine the correct bearings.

Q.3

(a) **Do the following. (any two)** **[08]**

1. **Define the following terms.**
   a. **Level surface b. Reduced level.**
   c. **Bench Mark. d. Change point.**
2. **Description of different parts of dumpy level with neat sketch.**
3. **Use of contour map.**

(b) **The following staff readings were recorded in a leveling operation..** **[06]**
1.175, 2.605, 1.835, 2.405, 1.145, 0.965, 1.115, 1.785, 1.225, 1.645, &1.715
Station A is a benchmark of reduced level 175.680 m. Find the R.L. of all other points by rise and fall method. The instrument was shifted after the 2nd,6th and 9th readings. The first reading was to point A.

OR

Q.3

(a) **Do the following (any two)** **[08]**

1. **Define the following terms.**
   a. **Back sight**
   b. **Foresight**
   c. **Contour interval**
   d. **Horizontal Equivalent**
2. **Write in detail about types of benchmarks.**
3. **Write about characteristics of contour.**

(b) **The following consecutive readings were taken with dumpy level and a 4 meter leveling staff on a continuously sloping ground as 20 m intervals.** **[06]**

0.780, 1.555, 1.765, 2.430, 2.785, 3.480, 1.155, 1.960, 2.275, 3.640, 0.935, 0.845, 1.630, and 2.350 . The R.L. of starting point was 50.750 m.

(1) Rule out a page of level book and enter above readings.
(2) Calculate RLs of other point by Height of Instrument method and apply usual checks.