Mid-West University
Examinations Management Office
End Semester Examinations 2081

Bachelor level/ B.E. Civil/ 3rd Semester

Time: 3 hours

Subject: Surveying I (CE433/CE206)

Full Marks: 50

Pass Marks: 25

- *Attempt all the questions*
- *Figures in the margin indicate full marks.*
- *Assume suitable values, with a stipulation, if necessary.*
- *Candidates are required to answer the questions in their own words as far as possible.*

1. Define surveying. Write the principle of surveying. 1+2

2. What types of errors do you face when tapping, and how can you overcome them? 1+2

3. A steel tape is 20m long between end graduation at a temperature of 25°C under a pull of 50N 4 when laying on flat. The tape is stretched over two supports equally between which it records 20m. All the supports are at same level. If the temperature in the field is 35°C and the pull on the tape is 85N, calculate the actual length between end graduations and the equivalent length at msl if the measurement was made at the elevation of 1050.00m.

   Given

   Area of cross section of tape = 7.00 mm^2

   Mass of the tape = 1.60 Kg

   Coefficient of expansion = 1.1×10^{-5}/°C

   Youngs Modulus = 2×105 Kg/mm^2

   Radius of The Earth = 6372 Km

4. Explain the process of using an Abney level and field book to measure horizontal distances on 2 uneven terrain.

5. During compass survey in link traverse from station M_1 to M_9, following observations were 5 recorded.

Station	Deflection Angle	Traverse Leg	Bearings
M_2	-75°	M_1-M_2	110°
A	+25°	M_2-A	
B	-95°	A-B	
M_8	+75°	B-M_8	
		M_8-M_9	44°

Compute bearings of link legs. Check accuracy of work and correct the affected bearings if necessary.

6. Balance the coordinate of a link traverse XABCY. The coordinate of stations X and Y are 7 (562.510mN, 175.250mE) and (443.610mN, 443.610mE) and permissible error 1:500. Other observed data are given below:

Legs	XA	AB	BC	CY
Length	120.00	111.00	132.40	97.60
Bearings	135°00'	119030"	175°00'	77°30'

7. a. Describe the temporary adjustment of a leveling instrument before starting leveling work. 3