Mid-West University

Examinations Management Office

End Semester Examinations 2081

Bachelor level/ B.E. Civil/ 4th Semester | Full Marks: 50

Time: 3 hours | Pass Marks: 25

Subject: Engineering Surveying II (CE442/CE210)

- *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. a) Define tacheometry. Explain the source of error in tacheometric survey. **[1+2]**

b) To determine the distance between two points C and D and their elevations, the following observation ware taken upon a vertically held staff from two traverse stations A and B. The tachometer was fitted with an anallactic lens. Bearing of AC and BD are 330°25' and 25°50'respectively.

Station	HI	Easting	Northing	Staff Station	Vertical Angle	Staff Readings
A	1.50	165.85	220.35	C	12°20'	1.225, 1.86, 2.456
B	1.45	210.60	515.10	D	9°45'	2.47, 1.30, 1.885

Calculate:

i. The distance CD.

ii. RL of C and D given that RL of A and B are 335.450m and 315.67m respectively.

iii. Gradient of CD line. **[6]**

2. a) It is required to determine the clear height of a flood light tower in an arena by using a tachometer and this zenith angles observation taken at 4m and 2.5m height on a target vane held on a plinth level of tower were 87°55′ and 88°40′ respectively. From the same instrument, zenithal angle observed at top of the tower was found as 67°55′. If the RL of the instrument axis was 1250.450m, calculate the clear height of the tower (plinth to top) of the tower. **[5]**

b) How can you use the contour map in civil engineering field? Write the characteristics of contour with neat sketch. **[2+3]**

3. a) The coordinates of three stations P, Q and R are given in the table and from instrument station O following observation are taken.

Station	Northing (m)	Easting(m)	Angle to right
P	5000	5000	$< POQ = 115°10'25"$
Q	9000	8500	$< QOR = 120°10'25"$
R	5000	12000	$< ROP = 125°10'10"$

Calculate the coordinate of station O by Tienstra method. **[6]**

b) Explain the importance of construction survey. Write the steps of setting out the building on ground. **[2+2]**