COURSE CODE: 10B11CE412   MAX. MARKS: 35

COURSE NAME: Surveying

COURSE CREDITS: 04   MAX. TIME: 2 HRS

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means. Assume suitable data if required. Notation has its usual meaning.

Q1.   **Answer the following in brief:**   **[5]**

     a. What is collimation error? To check the collimation error in a levelling instrument what would you do?

     b. What is centring in plane tabling?

     c. Define the term Bench Mark. Name different types of Bench Mark.

     d. Define the term Magnetic Declination.

     e. What is curvature error in leveling? How it is corrected?

Q2.   **(a)** Explain the architecture of a GIS.   **[2]**

       (b) How data in GIS is represented? Explain the Raster data model?   **[2]**

Q3.   Balance the traverse ABCDEA if required?   **[4]**

		Consecutive coordinate	
Line	Length (m)	Latitude (m)	Departure (m)
AB	70	21.5	-65.45
BC	80	-80.755	-5.25
CD	43	-41.0	13.55
DE	38	-14.25	35.15
EA	115	114.15	22.315

Q4. The following staff readings were observed successively with a level, the instrument having been moved after third, sixth and eighth reading:

     2.228   1.66   1.55   2.90   2.864   1.262   0.602   1.982   1.044   2.684 meters.

Enter the above readings in a page of a level book and calculate the R L of points if the first reading was taken with a staff held at the bench mark of 232.23 m.   **[4]**

Q5. Calculate the necessary data for setting out a circular curve of 350 m radius to connect the straights by the method of offsets from chord produced. The chainage of intersection point of two straight is 1238 m and the deflection angle is 36 °. Take peg interval = 150 links of a chain. Also draw the rough sketch of the curve layout.   **[6]**

Q6. A tacheometer fitted with an anallatic lens having a value of $K= 100$ was setup at C, near to traverse leg AB. The following readings were taken with the staff held vertically. Calculate the length AB, difference of elevation between A and B and gradient of line AB. [6]

Inst St.	Staff station	Bearing	Vertical angle	Intercept (m)	Central hair reading (m)
C	A	130°	10 °32′	1.11	1.810
	B	220°	5°06′	1.64	2.120

Q7. An incomplete traverse task is obtained as follows. Calculate the missing quantities L and α. [6]

Line	Length (m)	Bearing (m)
AB	725	α
BC	1060	N62 °30′E
CD	L	N 37 °36′E
DE	945	S 55 °18′W
EA	577.2	S 2 °42′W