

B. Arch. Patr-II 3rd Semester Final Examination, December 2009
Surveying: (CE-302A)

Full Marks: 70

Time: 3 Hours

(Assume any relevant data if necessary)
(Two marks reserved for neatness in both halves)

First Half

Answers question no. **FOUR** and any **TWO** from the rest

1. (a) What is magnetic declination and local attraction?
(b) ABCDEFA is a regular hexagonal clockwise traverse. Line AB has a bearing of 40° . Calculate the bearings of the other lines if the locality has a declination of $2^\circ E$.

(4+8=12)

2. (a) Why adjustment of leveling instrument is necessary?
(b) The following test was conducted by a dumpy level with two stations A and B 50m apart.

Instrument station	Staff Reading (m) on	
	A	B
Middle of AB	2.0	1.70
At C, 15m from A and between points A, B	1.70	1.50

Calculate the true level difference between the stations A and B.

(4+8=12)

3. (a) Enumerate the sources of errors in chaining.
(b) A 20m metallic chain is standardized at $20^\circ C$ at a pull of 10kg. A line was measured with the chain in air under a pull of 25 kg and at a mean temperature of $30^\circ C$ and found to be 500m long. The cross-sectional area of the chain is 0.03cm^2 , weight of the chain is 2.50kg, coefficient of expansion $\alpha = 11.5 \times 10^{-6} / ^\circ C$ and $E = 2.1 \times 10^6 \text{ kg/cm}^2$. Compute the true length of the line.

(4+8=12)

4. Write short notes (any three)
- Reconnaissance
 - Check line and tie line
 - Magnetic meridian and true meridian
 - Optical square
 - Reciprocal ranging

Answers question no **EIGHT** and any **TWO** from the rest

5. (a) Mention the procedure of entering the reading in a level book.

(b) Following is the page of a level book. Complete the record and apply necessary check.

Staff station	Staff Readings (m)			Height of instrument	Reduced level	Remarks
	Back sight	Intermediate Sight	Fore sight			
1	1.30			?	100.00	Bench Mark
2	1.50		1.60	?	?	CP
3	1.50		1.60	?	?	CP
4		1.30			?	
5		1.70			?	
6	1.60		2.20	?	?	CP
7		1.60			?	
8		1.70			?	
9			1.40		?	

(4+8=12)

6. (a) Name the accessories required for plane tabling

(b) Enumerate the advantages and disadvantages of plane tabling.

(c) Describe the two-point problem.

(2+4+6=12)

7. (a) What do you mean by profile levelling?

(b) What is parallax? Describe how it may be eliminated.

(c) Enumerate the errors in levelling.

(3+5+4=12)

8. Write short notes (**any three**)

i. Back sight and fore sight

ii. Orientation of plane table

iii. Method of radiation

iv. Reciprocal levelling

v. Temporary adjustment of level

(3x3=9)