



(Following Paper ID and Roll No. to be filled in your Answer Book)

**PAPER ID : 180211**

Roll No.

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## B. Tech.

(SEM. II) THEORY EXAMINATION, 2014-15  
SURVEYING & LEVELING

Time : 3 Hours]

[Total Marks : 100

Note : Attempt each question. Assume data wherever necessary.  
The use of calculator is permitted.

### SECTION - A

- 1 Answer the following short answer type questions : **10×2=20**
- (a) What do you mean by magnetic declination?
  - (b) Differentiate between plan and map.
  - (c) What are the parts of a Prismatic compass?
  - (d) Define Surveying. Write few lines on its basic concepts.
  - (e) Enumerate the accessories of Plane Table Survey.
  - (f) Write short note on Abney level.
  - (g) What is magnetic Meridian.
  - (h) Rule out a page to entry levels in a level book.
  - (i) What is the basic principle of Theodolite?
  - (j) Differentiate between back bearing and back sight.

## SECTION - B

2 Answer three parts of the following : **10×3=30**

(a) Find back bearing of the following observed bearings:

(i)  $AB = 41^\circ 15'$

(ii)  $BC = 138^\circ 18'$

(iii)  $CD = 208^\circ 22'$

(iv)  $DE = 316^\circ 26'$

(b) Plot the following cross staff survey of a field ABCDEFG and calculate its area. (All dimensions are in metres.)

	750	D	
	650		210 E
C 180	490		
	300		250 F
B 160	180		
	100		50 G
	0	A	

(c) What is Orientation? What are the different methods of Orientation of a plane table?

(d) Write short note on the following :

(i) Bench mark

(ii) Bearing.

(e) What are the temporary and permanent adjustments of a level? Discuss in detail.

## SECTION - C

3 Answer all parts of the following : **10×5=50**

- (a) How will you find the height of a hill with the help of Theodolite? Also discuss the temporary adjustments.

**OR**

Following consecutive readings were taken at a common interval of 50 m. The bench mark was given as 100 m. The dumpy level was shifted after 6th reading : 0.50, 0.85, 1.35, 2.28, 3.75, 4.10, 0.45, 1.20, 2.55, 3.15 and 4.25 m.

Rule out a page of level book and find the reduced levels of the above points. Apply the checks also?

- (b) Attempt any two parts of the following:
- (a) Explain the working of Abney level.
  - (b) Explain the radiation method used in plane table survey.
  - (c) Explain the theory and working of a Planimeter.

**OR**

What are the methods of plane table survey? Discuss intersection method in detail.

- (c) Where the errors in compass survey is caused? Give remedial measures.

**OR**

How will you convert the quadrantal system bearing to whole circle system bearing? Also show the errors caused in this survey.

- (d) Name the general classes of survey. Describe the types of chains commonly used for surveying, with neat and labeled diagram.

**OR**

A 20 m chain was found to be 10 cm too long after chaining a distance of 1500 m. It was found to be 18 cm too long at the end of day's work after chaining a total distance of 2900 m. Find the true distance if the chain was correct before the commencement of the survey.

- (e) What is the principle of chain survey? Describe the cross staff survey with the help of example.

**OR**

Explain the simple and differential leveling.

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