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

Paper ID : 180222   Roll No.

B.TECH.

Theory Examination (Semester-II) 2015-16

SURVEYING & LEVELING

Time : 3 Hours   *Max. Marks : 100*

Section-A

1. **Attempt all parts. All parts carry equal marks. Write answer of each part in short.** **(2 × 10 = 20)**

(a)   Differentiate between accuracy and precision.

(b)   Define the following terms: Datum, Benchmark.

(c)   What is two point problem in plane table surveying?

(d)   What is offset? Explain different types of offsets.

(e)   What are the sources of error in theodolite?

(f)   What are the different checks in closed traverse and open traverse.

(g) Differentiate clearly between plane and geodetic surveying.

(h) Discuss the uses of traversing.

(i) What is the principle of compass surveying.

(j) Differentiate between Plan and Map.

Section-B

2. Attempt any five questions from this section.

$(10 \times 5 = 50)$

(a) What are the different types of leveling staff? State the merits and demerits of each.

(b) Which are the methods of plane tabling, enlist them with their definition and explain the procedure for any one of them.

(c) Explain the geometry of Theodolite with figure.

(d) Write short notes on :

   (i) Whole circle bearing system.

   (ii) Magnetic declination

(2)

(iii) Dip of the magnetic needle

(iv) Local attraction.

(v) Fore bearing and back bearing.

(e) Discuss in detail various kinds of errors in leveling.

(f) What is surveying ? What are the basic principles of surveying? Explain with examples.

(g) What do you understand by three point problem, explain Lehmann's method and Bessel's method for solving it.

(h) Explain different types of tape corrections and how they are applied? Find the horizontal length of a steel tape of 40m length whose one end is held 1m lower than the other?

Section-C

Note : Attempt any two questions from this section. (15×2=30)

3. Sketch and describe the salient features of prismatic compass? Also write the difference between prismatic compass and surveyors compass.

4. The following readings were observed successively with a leveling instrument. The instrument was shifted after 5th and 11th readings.

0.585, 1.010, 1.735, 3.295, 3.775, 0.350, 1.300, 1.795, 2.575 , 3.375, 3.895 , 1.735, 0.635, 1.605.

Draw a page of level book and determine the RL of various points if RL of the first point is 136.440. Use rise and fall method.

5. The following Forebearings and Backbearings were observed in traversing with a compass.

Line	Forebearing	Backbearing
PQ	S 37°30'E	N 37°30'W
QR	S 43°15'W	N 44°15'E
RS	N 73°00'W	S 72°15'E
ST	N 12°45'E	S 13°15'W
TP	N 60°00'E	S 59°00'W

Calculate the interior angles and correct them for observational errors.

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