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Total Number of Pages : 02

B.Tech
PCI3I102

3rd Semester Regular / Back Examination 2018-19

SURVEY

BRANCH : CIVIL

Time : 3 Hours

Max Marks : 100

Q.CODE : E786

Answer Question No.1 (Part-1) which is compulsory, any eight from Part-II and any two from Part-III.

The figures in the right hand margin indicate marks.

Part- I

Q1 Short Answer Type Questions (Answer All-10) (2 x 10)

- The distance between two points measured with a 30 m chain was recorded as 216m. It was afterwards found that the chain was 10 cm too long. What was the true distance between the points?
- What is well conditioned triangle? Why is it required?
- What is local attraction? What are the sources of local attractions?
- Find the error of reading of a leveling staff if the observed reading is 3.805m at a point sighted, the staff being 148mm off the vertical through the bottom.
- Define and distinguish between 'Back sights' and 'Fore sight' in the process of fly leveling.
- What considerations would you have while selecting the contour interval?
- Can you use a theodolite as a leveling instrument? If so, how?
- What is meant by stopping sight distance?
- What are the objectives of GIS?
- What are the fundamental quantities measured by a Total Station?

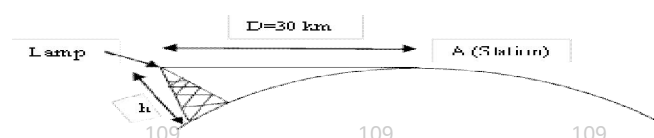
Part- II

Q2 Focused-Short Answer Type Questions- (Answer Any Eight out of Twelve) (6 x 8)

- Briefly explain the methods of chaining on sloping ground.
- List the different tape corrections applied for measured length. Explain in detail.
- The following are the bearings observed in traversing, with a compass, an area where local attraction was suspected. Calculate the interior angles of the traverse and correct them if necessary.

Line	Fore Bearing	Back Bearing
AB	150°0'	330°0'
BC	230°30'	48°0'
CD	306°15'	127°45'
DE	298°00'	120°00'
EA	49°30'	229°30'

- A lamp at the top of a light house is visible just above the horizon from a station at sea level. The distance of the lamp from the station is 30 km. Find the height of the light house.



- e) Describe the temporary adjustments of a leveling instrument.
- f) The following readings refer to a reciprocal leveling operation between two points A and B. If the RL of A=378.650, find the RL of B. If the distance between the stations is 950 m, find the collimation error, if any, of the instrument.

Instrument at	Staff reading at	
	A	B
A	0.656	2.097
B	0.867	2.298

- g) Describe the procedure for measuring horizontal angle with a theodolite.
- h) Calculate the interior angles of a traverse from the bearing of the line given below

Line	AB	BC	CD	DE	EF	FA
Bearing	N60° 25'E	S85° 30'E	S25° 45'E	S64° 30'W	N82° 45'W	N28° 14'W

- i) What are the characteristics of contour lines? And state the use of a contour map.
- j) Describe the working principle of Electromagnetic distance measurement.
- k) What are the properties of electromagnetic waves? Draw complete electromagnetic spectrum showing all wavelengths.
- l) Define Remote Sensing and briefly explain the principle of Remote Sensing. Also write a note on application of Remote Sensing.

Part-III

Long Answer Type Questions (Answer Any Two out of Four)

- Q3 a)** A 20m steel tape was standardized on flat ground at a temperature of 20°C and under a pull of 15 kg. The tape was used in catenary at a temperature of 30°C and under a pull of P kg. The cross-sectional area of the tape is 0.22 cm², and its total weight is 400 g. The Young's modulus and coefficient of linear expansion of steel are 2.1×10^6 kg/cm² and 11×10^{-6} per °C respectively. Find the correct horizontal distance if P is equal to 10 kg. **(10)**
- b)** Explain the Bowditch rule for adjusting a compass traverse. **(6)**
- Q4** The following consecutive readings were taken with a level and 4 m staff on continuously sloping ground at a common interval of 30 m.
0.780, 1.535, 1.955, 2.430, 2.985, 3.480, 1.155, 1.960, 2.365, 3.640, 0.935, 1.045, 1.630 and 2.545
The reduced level of the first point was 180.750. Rule out the page of a level book and enter the above readings. Calculate the reduced levels of the points by height of Collimation method and also the gradient of the line joining the first and last points. **(16)**
- Q5 a)** Explain various methods of Interpolation of Contours. **(6)**
- b)** Explain the temporary and permanent Adjustments of a Transit Theodolite. **(10)**
- Q6** Explain the principle of different types of EDM instruments. Discuss their advantages and limitations also. **(16)**