

Total No. of Questions : 4]

SEAT No. :

**PF196**

[Total No. of Pages : 2

**APR-26/SE/Insem-242**

**S.E. (Civil) (Insem)**

**SURVEY**

**(2019 Pattern) (Semester - IV) (201009)**

*Time : 1 Hour]*

*[Max. Marks : 30*

*Instructions to the candidates:*

- 1) *Solve Q.1 or Q.2 and Q.3 or Q.4.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right indicate full marks.*
- 4) *Assume suitable data if necessary.*
- 5) *Use of electronic pocket calculator is allowed.*
- 6) *Use of cell phone is prohibited in examination hall.*

**Q1) a) Explain the principle of surveying. [4]**

b) Explain intersection method of plane table surveying with neat sketch.[4]

c) The following consecutive readings were taken with an auto level and a 4-meter levelling staff on a continuously sloping ground at common intervals of 30 m.

0.855 (on A), 1.545, 2.335, 3.115, 3.825, 0.455, 1.380, 2.055, 2.855, 3.455, 0.585, 1.015, 1.850, 2.755 and 3.845 (on B). [7]

The RL of A was 380.500. Prepare a tabular form and calculate the RLs of different points using Rise and Fall method. Apply the usual checks. Also, determine the gradient of AB.

OR

**Q2) a) Explain in detail the reciprocal type of leveling. [4]**

b) Explain the following terms: [4]

- i) Meridian
- ii) Declination
- iii) Benchmark
- iv) Ranging

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- c) The following are the observed bearings of the lines of a traverse ABCDEA with a compass in a place where local attraction was suspected. Find the correct bearings of the lines. [7]

Line	FB	BB
AB	191°45'	13°0'
BC	39°30'	222°30'
CD	22°15'	200°30'
DE	242°45'	62°45'
EA	330°15'	147°45'

- Q3) a) Write a short note on Prolongation of straight-line using theodolite. [4]  
 b) State and explain the fundamental axes of theodolite. [5]  
 c) Was not recorded. Compute the length and bearing of the line DA. [6]

Line	Length (m)	Bearing
AB	75.50	30°24'
BC	180.50	110°36'
CD	60.25	210°30'
DA	?	?

OR

- Q4) a) Explain the following terms: [4]  
 i) Telescope inverted  
 ii) Swinging of telescope  
 iii) Latitude  
 iv) Departure  
 b) Enlist and explain the permanent adjustment of transit theodolite. [5]  
 c) Determine the missing data for the following table of a closed traverse ABCDA. [6]

Line	AB	BC	CD	DA
Length (m)	230.50	250.20	?	?
Bearing	N36°45'E	S82°48'E	S10°15'E	N82°43'W

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