

3E1132

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B. Tech. III - Sem. (Main) Exam., Dec. - 2018
PCC Civil Engineering
3CE4 - 05 Surveying

Time: 3 Hours

Maximum Marks: 120

Instructions to Candidates:

Attempt all ten questions from Part A, selecting five questions from Part B and four questions from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No. 205)

1. NIL

2. NIL

PART - A

(Answer should be given up to 25 words only)

[10×2=20]

All questions are compulsory

- Q.1 What is surveying? [2]
Q.2 What do you mean by local Attraction? [2]
Q.3 What do you mean by Benchmark? [2]
Q.4 What do you mean by Reduced level? [2]
Q.5 What is circular curve? [2]
Q.6 What do you mean by Tangent correction? [2]
Q.7 Give any two advantage of Tacheometric Surveying. [2]
Q.8 What is aerial photographs? [2]
Q.9 Give any two advantage of Total station. [2]
Q.10 Give type of E.D.M. [2]

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[5060]

PART - B

(Analytical/Problem solving questions)

[5×8=40]

Attempt any five questions

Q.1 A tape 20 m long of standard length at 84 °F was used to measure a line, the mean temperature during measurement being 70°. The measured distance was 875.10 meters.

The following being the slopes:

[8]

2°10'	For	90 m
4°12'	For	150 m
1°6'	For	50 m
7°48'	For	200 m
3°0'	For	300 m
5°10'	For	80.15 m

Find the true length of the line if the co-efficient of expansion is 65×10^{-7} per 1°F.

Q.2 The following bearings were observed while traversing with a compass.

[8]

Line	AB	BC	CD	DE
F.B	45°65'	96°55'	29°45'	324°48'
B.B	220°10'	277°5'	209°10'	144°48'

Mention which stations were affected by local attraction and determine the corrected bearing.

Q.3 (a) Convert the following whole circle bearing to quadrant bearing [4]

(i) $22^{\circ}30'$

(ii) $170^{\circ}12'$

(iii) $211^{\circ}54'$

(iv) $315^{\circ}24'$

(b) Convert the following quadrant bearing to whole circle bearing. [4]

(i) N $12^{\circ}24'$ E

(ii) S $31^{\circ}36'$ E

(iii) S $68^{\circ}6'$ W

(iv) N $5^{\circ}42'$ W

Q.4 The following staff readings were observed successively with a level, the Instrument having been moved after third, sixth and eighth readings: 2.20; 1.606; 0.898; 2.090; 2.880; 1.255; 0.602; 1.982; 1.044; 2.684 meters. http://www.rtuonline.com [8]

Enter the above readings in a page of a level book and calculate the R.L. of points if the first reading was taken with a staff held on a bench mark of 432.384 m.

Q.5 Find the error of reading of a level staff if the observed reading is 3.845 m at The point sighted, the staff being 15 cm off the vertical through the bottom. [8]

Q.6 Determine the gradient from a point A to a point B from the following observation made with a tacheometer fitted with an anallatic lens. The constant of the instrument was 100 and the staff held vertically. [8]

Instrument station	Staff point	Bearing	Vertical angle	Staff reading
P	A	134°	$+12^{\circ}32'$	1.360, 1.915, 2.47
	B	224°	$+6^{\circ}6'$	1.065, 1.885, 2.705

Q.7 A tacheometer is set up at an intermediate point on a traverse course PQ and the following observations are made on a vertical held staff. [8]

Staff station	Vertical Angle	Staff intercept	Axial hair readings
P	+7°36'	2.350	2.105
Q	+6°8'	2.055	1.895

The instrument is fitted with an anallactic lens and the constant is 100. Compute the length of PQ and reduced level of Q that of P being 320.21 meters.

PART - C

(Descriptive/Analytical/Problem Solving/Design Questions) [4×15=60]

Attempt any four questions

- Q.1 Draw neat and clean sketch of a dumpy level and explain its working and uses in leveling. [15]
- Q.2 Write corrections applied to length measurement with chain or tape. [15]
- Q.3 Enumerate the classification of surveys based on equipment used. What are the applications of chain and compass survey? [15]
- Q.4 What is E.D.M.? Explain Principle of E.D.M. and also types of E.D.M. [15]
- Q.5 What is Total Station? Explain parts of Total Station. [15]

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