SUBJECT CODE:- 491

FACULTY OF ENGINEERING AND TECHNOLOGY

S.E.(Civil) Examination Nov/Dec 2015

Surveying-I

(Revised)

[Time: Three Hours] **[Max. Marks: 80]**

"Please check whether you have got the right question paper."

N.B i) Q.No.1 and Q.No.6 are compulsory.
ii) Answer any two questions from the remaining questions in each section.
iii) Figures to the right indicate full marks.
iv) Assume suitable data, if necessary.

Section A

Q.1 Attempt any five 10

1) Give the primary classification of 'Survey' and distinguish between them.
2) What is local attraction? How it is deleted
3) What so you mean by "closing error" in traverse survey
4) What is "Indirect Ranging", explain the method of ranging a line across a rising ground.
5) Explain temporary adjustments of prismatic compass
6) What are true bearings and Magnetic bearings
7) Give the advantages of plane table surveying.
8) Statement of "Three point problem".
9) What do you mean by contour interval and horizontal equivalent
10) Explain "GTS" bench mark.

Q.2 a) The length of a chain line when measured with a 20m chain, was found to be 1340m but when a 30m chain, which had one link too short was used for the purpose, the line was found to be 1350m long. What was the error in the 20m chain? 08

b) Explain the working of the following with neat sketches. 07
i) Line ranger
ii) Optical square

Q.3 a) Below are the bearings observed in a traverse survey conducted with a prismatic compass at a place where local alteration is suspected. 08

Line	Fore baring	Back bearing
PQ	$124^0\ 30'$	$302^0 30'$
QR	$68^0 15'$	$246^0 00'$
RS	$310^0\ 30'$	$135^0 15'$
SP	$200^0 15'$	$17^0 45'$

b) Write a note on recording of field notes. Explain with the help of a typical page with reference to chain surveying. 07

Q.4 a) Write a detail note on profile revelling 07

b) In a two peg test of a dumpy level the following readings were taken: 08
i) Instrument at C midway between A and B, AB = 100m
Staff reading on A = 1.585
Staff reading on B = 1.22

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ii) Instrument at near A.
Staff reading on A = 1.425
Staff reading on B = 1.150
Is the line of collimation inclined upwards or downwards and by how much? With the instrument at A what should be the staff reading on B in order to place the line of collimation horizontal.

Q.5 a) Explain in detail the procedure for solving a two point problem. 08

b) Explain the methods of orientation by 07
i) Magnetic meridian
ii) Back sighting

SECTION-B

Q.6 Attempt any five: 10

1) What is tachometry?
2) Discuss the different systems of tachometric measurements
3) How are tachometric constants determined .
4) Why are both the Verniers of a theodolite recorded?
5) Enlist the fundamental lines of a transit theodolite.
6) How is parallax eliminated
7) What do you mean by swinging and transiting a theodolite
8) What is "zero circle" are of planimeter
9) Define direct angle
10) Define "Mass diagram"

Q.7 a) Write a note on "Beaman Stadia Arc". 05

b) The following observations are recorded on a vertical staff. Find R.L of relation A, B and C. The R.L of bench mark is 300.75m. the tachometric constants are k = 100 c = 0.3. 10

Inst station	Height of instrument (m)	Staff station	Vertical angle	Stadia readings		
				u	m	l
A	1.520	BM	$-8^0 30'$	1.825	1.225	0.830
A	1.520	B	$+7^0 30'$	0.960	1.520	2.135
B	1.720	C	$+11^0 10'$	1.660	2.110	2.980

Q.8 a) The lengths and bearings were recorded in running a theodolite traverse in anticlockwise direction. The length of CD and DE could not be measured in the field: 08

Line	Length	Bearing
AB	130m	$0^0 0' 0''$
BC	84.3m	$334^0 48'$
CD	?	$255^0 20'$
DE	?	$123^0 36'$
EA	88m	$35^0 36'$

b) Explain in detail the computations in "Gates Traverse Table" 07

Q.9 a) What is Prismoidal correction? Work out such correction for 08

i) One level section

ii) Two level section

b) Explain the “Double Meridian Distance” method for computation of areas. 07

Q.10 a) Write a note on 08

i) Measurement of vertical angle by using a thodolite

ii) Measurement of magnetic bearing of a line.

b) Explain 07

i) Independent and consecutive coordinates

ii) Theory of Anallactic lens.

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