Total No. of Questions – [8] Total No. of Printed Pages 3

G.R. No.	

Paper code - U228-114 (ESE)

MAY 2019/ENDSEM

S. Y. B. TECH. (CIVIL ENGINEERING) (SEMESTER - II)

COURSE NAME: SURVEYING

COURSE CODE: CVUA22174

(PATTERN 2017)

Time: [**2 Hours**] [Max. Marks: **50**]

(*) Instructions to candidates:

1) **Answer Q.1, Q.2, Q.3, Q.4, Q.5 OR Q.6, Q.7 OR Q.8**
2) **Figures to the right indicate full marks.**
3) **Use of scientific calculator is allowed**
4) **Use suitable data where ever required**

Q.1) a) The following bearing were observed in traversing with a compass, an area where local attraction was suspected. Find the amount of local attraction at different stations, the correct bearing of lines and the included angles. Also draw a sketch of the plot if AB=100 m, BC=100 m, and CD=50 m and show it in all included angles. [6]

Line	FB	BB
AB	68°15′	248°15′
BC	148°45′	326°15′
CD	224°30′	46°00′
DE	217°15′	38°15′
EA	327°45′	147°45′

OR

b) Define orientation in plane tabling. State the methods and explain any one in detail. [6]

Q.2) a) In testing a dumpy level, the following records were noted while undertaking reciprocal levelling. [6]

Instrument at → Staff at ↓	A	B
A	1.725	1.370
B	1.560	1.235

a) Is the collimation line in adjustment?
b) What should be correct reading at A, during the second setup to make line of collimation truly horizontal?
c) Find the collimation error also.

OR

b) Show with neat sketches the characteristics feature of contour lines of the following. [6]
a) a pond b) a hill c) a ridge line d) a valley line e) a vertical cliff.

Q.3) a) What are methods of balancing closing error in a traverse? Explain any one in detail. [6]

OR

b) The following records are obtained in a traverse survey. Where the length and bearing of the last line were not recorded. [6]

Line	Length (m)	Bearing
AB	75.5	30°24´
BC	180.5	110°36´
CD	60.25	210°30´
DA	?	?

Compute the length and bearing of line DA.

Q.4) a) Derive equation for setting horizontal curve by taking offset from long chord. [4]

OR

b) Derive equation for setting horizontal curve by taking offset from tangents. [4]

Q.5) a) The following observations were taken with tachometer fitted with an anallatic lens, the staff being held vertically. The constants of the tacheometer is 100.Calculate R.L of B and distance between A and B. [6]

Inst station	Height of instrument	Staff station	Vertical angle	Staff reading			Remark
P	1.255	B.M	-4°20´	1.325	1.825	2.325	RLof BM= 255.750 m
P	1.255	A	+ 6°30´	0.850	1.600	2.350	
B	1.450	A	-7°24´	1.715	2.315	2.915	

b) Write a note on marking alignment of tunnel on ground and transferring underground [4]

c) Draw sketch and state equation for RL of point when the line of sight is inclined downwards and staff held vertical with usual notations. [4]

OR

Q.6) a) The following observations were made in a tachometer survey fitted with anallatic lens. [6]

Inst Station	Height of axis	Staff station	Vertical angle	Hair readings(m)			Remark
A	1.345	B.M	- 5°30´	0.905	1.455	2.005	R.L.of B.M.=450.500 m
A	1.345	B	+8°0´	0.755	1.655	2.555	
B	1.550	C	+10°0´	1.500	2.250	3.000	

a) Calculate RLs of A,B and C

b) Horizontal distance AB and BC.

b) Describe the method of determining constants of a tachometer from field [4]

measurement.

c) Explain Procedure for setting out bridge alignment and piers. [4]

Q.7) a) Write short note on stake out using Total station. [6]

b) Explain the use of Nautical Sextant. [4]

c) List any six-sounding equipment [4]

OR

Q.8) a) Explain concept of Remote elevation measurement. [6]

b) Write a note on shoreline survey. [4]

c) Describe the procedure of sounding using Echo_sounder. [4]