

19/11/13

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

B.E./B.Tech(Full Time) DEGREE END SEMESTER EXAMINATIONS, November/December 2013

AGRICULTURE & IRRIGATION ENGINEERING

THIRD SEMESTER – (REGULATIONS 2012)

AI 8302 – SURVEYING

5

Time: 3 hrs

Max Marks: 100

Answer ALL Questions

Part – A (10 x 2 = 20 Marks)

1. What do you understand by the term well conditioned triangle? Why is it necessary to have well conditioned triangles in chain survey?
2. If the length of 250m is measured on a slope of 1 in 4, find the horizontal length.
3. The true bearing of a tower as observed from a station A is  $350^{\circ}30'$ , and the magnetic bearing of the tower is  $2^{\circ}30'$ . The back bearing of the line AB when measured with a prismatic compass was found to be  $330^{\circ}30'$ . What is the true bearing of the line?
4. What are different types of errors in plane table surveying? How would you minimize them?
5. Write the Basic principle of Total Station.
6. How will you identify the position of an object using GPS?
7. Differentiate between direct leveling and indirect leveling
8. List different types of leveling staves? State the merits and demerits of each type.
9. What is cross sectioning? What is its importance?
10. What are the advantages and disadvantages of direct contouring?

Part – B (5 x 16 = 80 Marks)

11. How would you overcome the chaining difficulties if there are obstacles in chaining and ranging both? (16 marks)
12. (a) A closed compass traverse ABCDE was conducted round a lake and the following bearings were obtained. Determine which of the stations are suffering from local attraction and give the values of the corrected bearings.

Line	FB	BB
AB	74°20'	256°0'
BC	107°20'	286°20'
CD	224°50'	44°50'
DE	306°40'	126°0'

(16 marks)

(OR)

12. (b) What is resection in plane table surveying? Describe any two methods of resection.

(16 marks)

13. (a) A Tacheometer is set up at an intermediate point on a traverse course PQ and the following observations are made on a vertically held staff.

Staff Station	Vertical Angle	Staff intercept	Axial hair reading
P	+9°30'	2.250	2.105
Q	+6°00'	2.055	1.875

The instrument is fitted with an anallactic lens and the multiplying constant is 100.

Compute the length PQ and the reduced level of Q. R.L. of P = 350.50m

(16 marks)

(OR)

13. (b) What do you understand by closing error of a closed traverse? How will you adjust it by Gale's Table? (16 marks)

14. (a) Explain the working of a dumpy level with a sketch. What are the various temporary adjustments and explain them? (16 marks)

(OR)

14. (b) Following is the page of level book. Some of the readings got erased and are missing. Missing readings have been marked by cross marks. Calculate the missing readings.

Station	B.S.	I.S.	F.S.	Rise	Fall	R.L
1	X				0.827	150.00
2		2.457				X
3		2.400				X
4	2.697		X			148.070
5	X		2.051		X	148.716
6		2.500				149.784
7		2.896				149.388
8		X			0.124	X
9			2.672			149.612

(16 marks)

15. (a) Describe various methods of indirect contouring and methods of interpolation of contours (16 marks)

(OR)

15. (b) The following offsets were taken from a chain line to a hedge

<b>Distance (m)</b>	0	20	40	60	80	120	160	220	280
<b>Offset</b>	9.4	10.8	13.6	11.2	9.6	8.4	7.5	6.3	4.6

Compute the area included between the chain line, the hedge and the offset by Simpson's rule and Trapezoidal rule. (16 marks)