

KERALA AGRICULTURAL UNIVERSITY

B.Tech (Food.Engg) 2012 & Previous Admission

Ist Semester Re- Examination-January -2016

Cat. No: Cien.1101

Marks: 80.00

Title: Basic Civil Engineering (2+1)

Time: 3 hours

I Fill up the blanks

(10 x 1=10)

1. The least count of ordinary theodolite is
2. The constituents of cement concrete are
3. Additive constant of a tacheometer is
4. Initial setting time of ordinary portland cement is
5. is an aerobic waste water treatment process

State True or False

6. Pedometer gives the total distance covered by the number of paces
7. Method of repetition is used for measuring lengths
8. The upper plate of the leveling instrument is called as trivet
9. Plane table survey is suitable for all climatic conditions
10. Tacheometer is a theodolite fitted with an anallatic lens

II Answer any ten questions

(10 x 3=30)

1. Differentiate between true bearing and magnetic bearing
2. Differentiate between whole circle bearing and reduced bearing
3. Differentiate between pre chlorination and post chlorination
4. Differentiate between temporary hardness and permanent hardness
5. Differentiate between cement concrete and cement mortar
6. Mention the advantages of Zeolite process
7. What are the face left and face right observations? Why is it necessary to take both face observations?
8. Explain any two methods of disinfection
9. State the errors eliminated in repetition method of measurement of horizontal angle
10. The fore bearing and back bearing of two lines AB and BC are $40^{\circ}30'$ and $120^{\circ}30'$ respectively. Find the angle ABC
11. The magnetic bearing of a line AB is $S 38^{\circ}30' W$. Calculate the true bearing if the declination is $5^{\circ}30' W$
12. What are the different types of bench marks?

III Answer any Six questions

(6 x 5=30)

1. With a neat sketch explain the Hoffman's kiln
2. Explain the tests to which bricks are generally subjected?

3. Why filtration of water is necessary? How is it done with a slow sand filter?
4. With a neat sketch explain the working of a flash mixer
5. The length of a survey line was measured with a 20m chain and was found to be equal to 1200m. As a check, the length was again measured with a 25m chain and was found to be 1212m. On comparing the 20m chain with the test gauge, it was found to be 1 decimetre too long. Find the actual length of the 25m chain
6. The following consecutive readings were taken with a dumpy level. 2.228, 1.606, 0.988, 2.090, 2.864, 1.262, 0.602, 1.982, 1.044, 2.684 metres. The level was shifted after 3rd, 6th and 8th readings. Enter the above readings in a page of a level book and calculate the RL of points if the reading was taken with a staff held on a bench mark of 432.384m
7. The following fore and back bearings were observed in traversing with a compass in place where local attraction was suspected

Line	Fore bearing	Back bearing
AB	S37° 30'E	N37° 30'W
BC	S43° 15'W	N44° 15'E
CD	N73° 00'W	S 72° 15'E
DE	N12° 45'E	S13° 15'W
EA	N60° 00'E	S59° 00'W

Compute the interior angles and correct them for observational errors assuming the observed bearing of AB to be correct

8. The following is the data relative to observations made on a vertically held staff with a tacheometer fitted with an anallatic lens. The constant of the instrument was 100.

Instrument station	Ht. of axis	Staff station	Vertical axis	Hair readings	Remarks
P	1.50	BM	-6° 12'	0.963, 1.515, 2.067	RL of BM = 460.650
P	1.50	Q	+7° 5'	0.819, 1.341, 1.863	
Q	1.60	R	+12° 27'	1.860, 2.445, 3.030	

Calculate the distance PQ and QR and also the reduced levels of P, Q and R

(1 x 10=10)

IV Answer any one question

1. Briefly explain the chemical tests that are to be carried out to examine the quality of water
2. What do you understand by the term resection? Explain the two point problem and enumerate the advantages of plane table survey