

KERALA AGRICULTURAL UNIVERSITY
B.Sc (Hons.) Agriculture Programme – 2011 Admission
Ist Semester Final Examination – February / March 2012

Title : Engg 1101

**Course : Fundamentals of Soil, Water and
Conservation Engineering (1+1)**

Marks : 80

Time : 3 Hours

I. Fill up the blanks

1. The surveys in which earth surface is assumed as plane is ----- survey.
2. ----- is the process of marking a number of intermediate points on a survey line joining two stations in the field.
3. If the whole circle bearing of line AB is $30^{\circ}45'$ and line AC is $164^{\circ}25'$, then included angle between the lines is -----.
4. ----- is the instrument used to measure, water flowing through pipe lines
5. Leveling should always commence from a -----

Define the following

6. Scale of a map
7. Bench mark
8. Perpendicular offset
9. Dip of magnetic needle
10. Irrigation

(10x1=10)

II Answer any ten of the following

1. Differentiate between plan and map.
2. Write short note on optical square
3. What you mean by orientation of plane table? . Explain orientation of the table by back sighting
4. Explain intersection method of plane table surveying
5. Differentiate between closed and open traverse.

6. The fore bearing of a traverse sides are as follows. AB – $85^{\circ}10'$, BC – $155^{\circ}30'$, CD – $265^{\circ}5'$ and DE – $35^{\circ}30'$. Find their back bearings.
7. What you mean by traverse surveying? How does it differ from chain surveying?
8. The bearings of lines AB and AC are $37^{\circ}45'$ and $127^{\circ}35'$ respectively. Calculate the angle BAC
9. What are the advantages of plane table surveying?
10. Differentiate between back sight and fore sight
11. Write short note on border irrigation
12. What are the advantages of sprinkler irrigation?

(10x3=30)

III Write short essays on any six of the following

1. Describe about the components of drip irrigation system.
2. Explain the method of measurement of flowing water using current meter.
3. Explain standard conditions for installing a weir.
4. What you mean by contour bunds? Discuss about the types of contour bunds and their suitability
5. Explain the method of reciprocal leveling.
6. Describe about various types of bench marks.
7. Find the included angles between lines AB and AC, if their whole circle bearings are

AB $75^{\circ}30'$	AC $108^{\circ}50'$
AB $185^{\circ}50'$	AC $269^{\circ}25'$
AB $60^{\circ}10'$	AC $245^{\circ}10'$
AB $70^{\circ}20'$	AC $285^{\circ}40'$

8. An abstract of field notes of a cross staff survey is given as follows. Plot the field and calculate its area.

	D	
	△	
	112	27 E
C 50	90	
	70	60 F
B 39	54	
	40	35 G
	△	
	A	

(6x5=30)

IV Answer any one of the following

1. The following readings are successively taken with an instrument in leveling work. 0.359, 0.489, 0.622, 1.758, 1.895, 2.350, 1.780, 0.345, 0.687, 1.230. The position of the instrument was changed after taking 4th and 7th readings.

Draw out the form of a level field book and enter the above readings properly. Assume RL of the first point as 100m. Calculate RL of all the points and apply usual checks.

2. Explain various engineering measures of soil and water conservation.

(1x10=10)