KERALA AGRICULTURAL UNIVERSITY

B.Sc. (Hons.) Agriculture – 2008 Admission - 1st Semester

Final Examination – March/April 2009

Max. marks: 80

Title : Engg 1101

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

Time   : 3 hours

I.   Fill up the blanks   (20 X 0.5 = 10)

1. .... survey is done for determining the feasibility and
rough cost of the scheme.
2. The average pace length is .... cm.
3. The distance traversed is automatically recorded by the instrument
called.............
4. .... formula is used to find the mean velocity of flow in open
channel
5. Parshell flume is used for ....
6. Alidade is used for ....
7. WCB stands for ....
8. The process of leveling carried out along a given line to determine the
elevations of points at known distances is ....
9. The vertical distance between two consecutive contour is called ....
10. Back orientation is done for ....

Match the following

Section A		Section B
11.	Invar tape	a Point of known elevation
12.	French cross staff	b Steel and Nickel
13.	Intersection	c Quantity of water
14.	Weir	d Perpendicular direction
15.	Bench mark	e Change point
		f Locating points in plan

State TRUE / FALSE

16. The bottom of the leg of open cross staff is provided with a pointed iron
shoe.
17. In quadrantal bearing system the value of the angle does not exceed 90^0.
18. The method of orienting by magnetic needle is accurate.
19. Arrows are used for marking stations
20. In plane survey the curvature of the earth is not considered.

II.   Define the following.   (10 X 1 = 10)

1. Irrigation
2. Map
3. Clinometer

PTO –

4. Offset
5. Traverse
6. Ranging
7. Rill erosion
8. Closing error
9. Bearing
10. GTS bench marks

III. Write short notes / answers on ANY TEN   (10 X 2 = 20)

1. Border Irrigation
2. Sprinkler irrigation
3. Radiation
4. Reciprocal ranging
5. Differentiate ranging rod and ranging pole.
6. What is local attraction? How it can be detected?
7. Mention the advantages of plane table survey.
8. Discuss the various types of bench marks. ·
9. Describe the methods of designation of bearings.
10. How the differential leveling is carried out?

11. Convert the following from W.C.B. to R.B.
    i) $75^0\ 35'$ ii) $143^0\ 35'$ iii) 340^0 iv) 225^0

12. Calculate the back bearing of the following
    i) 180^0 ii) 10^0 iii) 320^0 iv) S $18^0\ 25'$ E

III.   Write short essays on ANY FOUR of the following   (4 X 5 = 20)

1. Components of drip irrigation system
2. Describe the procedure for carrying out chain survey.
3. Explain about the prismatic compass.
4. List out the advantages and disadvantages of plane table survey.
5. A compass survey was carried out around a closed traverse ABCD and the following readings were obtained.

Line	Observed bearings	
	Fore bearings	Back bearings
AB	$74^0\ 30'$	$256^0\ 10'$
BC	$107^0\ 30'$	$286^0\ 30'$
CD	$225^0\ 10'$	$45^0\ 10'$
DA	$306^0\ 30'$	$126^0\ 10'$

Find out the stations affected by local attraction and calculate the correct bearings.

6. Explain the methods of chaining on sloping ground.

V.   Write essays on ANY TWO   (2 X 10 = 20)

1. Explain with sketch the method of intersection.

2. Explain the various engineering measures of soil conservation.

3. Following consecutive readings were taken on points 1 to 7 along a line
   0.785, 1.326, 2.538, 3.425, ..., 2.328, 1.234, 1.657.
   The instrument was shifted after the fourth reading and first reading was taken on a BM with RL = 100.00. Rule out a page of a level book and work out the RL of all points..