KERALA AGRICULTURAL UNIVERSITY

B.Sc (Hons.) Ag. 2014 and previous Admission
I st Semester Final Examination- February-2015

Cat. No: Engg.1101 **Marks: 50**
Title: Fundamentals of Soil ,Water and Conservation Engineering(1+1) **Time: 2 hours**

I) Fill up the blanks **(10 x 1=10)**

1. Drip irrigation is suitable to practically all types of crops,except_____
2. A vertical line at any point is defined by the _____line
3. To locate the position of an inaccessible point ,_____method of plane tabling is used
4. The horizontal angle between true north and magnetic north at a place at the time of observation is called _____
5. The longest of the main survey line is called _____
6. Leveling should always commence from a_____

State True or False

7. In drip irrigated fields trees may topple during high winds
8. The magnetic needle deflects downwards in north as well as in south hemi spheres
9. The tip of a magnetic needle at equator is zero
10. Last reading in leveling is always a foresight

II Write short notes on any FIVE **(5 x 2=10)**

1. Explain the working of parshall flume
2. What are the advantages of drip irrigation
3. The back sight reading on a leveling staff held vertically on a bench mark whose RL is 100 m was 2.965 m and the foresight on the staff held vertical on a rail was 0.895 m. Find the reduced level of the rail
4. Differentiate between GTS Bench mark and temporary bench mark
5. The bearings of the sides of a triangle ABC are as under .AB=45 ^{0}15' , BC =150 ^{0} 50',CA=270 ^{0}.Calculate the interior angles of the triangle.
6. Differentiate between whole circle bearing and quadrantal bearing.
7. What are the different types of chain used in surveying .Explain about each of them

III Write short essays on FIVE of the following **(5 x 4 =20)**

1. What are the various surface irrigation methods .Briefly explain each of them
2. Describe a level field book for rise and fall method .Explain how the field notes are booked and accuracy of reduced levels checked

3. Explain the method of focusing of telescope
4. A compass was set on the station A and the bearing of AB was observed 309 ^{0} 15'. Then the same instrument was shifted to station B and the bearing of BA was found to be 129^{0}15'. Is there any local attraction at station A, or at station B
5. Find the included angle between the lines AB and AC ,if their reduced bearings are

I) AB N 40 ^{0} 10' E	AC N 89 ^{0} 45 'E
ii) AB N 10 ^{0} 50 'E	AC S 40 ^{0} 40' E
iii) AB S 35^0 45 'W	AC N 45 ^{0} 20' E
iv) AB N 30 ^{0} 25' E	AC N 30 ^{0} 25' W

6. What do you mean by orientation of plane table .Explain the method using trough compass
7. Describe about prismatic compass

IV Write essay on ANY ONE **(1 x 10=10)**

1. The following consecutive readings were taken with a dumpy level and a 4m staff on a continuously sloping ground on a straight line at a common interval of 30 m .

   0.680 1.455, 1.855 , 2.330 .2.885, 3.380, 1.055 , 1.860 , 2.265 ,3.540, 0.835 ,0.945, 1.530 and 2.445

   Instrument was shifted after 6th and 10th reading. The RL of the first point was 80.750.Rule out a page of a level field book and enter above readings. Calculate the reduced levels of the points by the rise and fall method .Apply usual checks
2. Which are the commonly used instruments for measuring irrigation water .Explain each of them

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