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GIET UNIVERSITY, GUNUPUR – 765022

B. Sc (Ag) (Fourth Semester) Examinations, June' 2021

AG(E)-221 WATER MANAGEMENT AND MICRO IRRIGATION**Time: 2 hrs****Maximum: 50 Marks****The figures in the right hand margin indicate marks.****PART – A****Q.1. Fill in the blanks with suitable word / figure.****(0.5 x 10 = 5 Marks)**

- Dielectric constant of soil water can be measured by -----
- The gypsum block can measure the soil water in range of -----
- IRBM refers to -----
- The soil samples are dried in oven at ----- temperature.
- Most suitable method of irrigation for fruit trees is -----
- Water use efficiency of sprinkler irrigation system is -----
- Intermittent supply of water is known as ----- irrigation.
- is the most important crop stage of wheat sensitive to irrigation.
- Maximum soil moisture is conserved by biodegradable eco-cover at the soil depth of -----cm
- The depth to sub-surface drains usually varies between ----- cm

Q. 2. Define (or) Explain the following in one or two sentences.**(1 x 5 = 5 Marks)**

- Define soil water potential.
- What are the practices for managing proper soil structure?
- Define latent heat flux.
- What are the components that increase the value of CU over ET?
- What are the parameters in the design of furrow irrigation system?

Q3. Choose the most appropriate answer from the following**(0.5 x 10 = 5 Marks)**

- Sulphuric acid method for soil moisture determination is based on which principle?
 - Temperature rise of soil
 - BD of the soil
 - Particle density of the soil
 - Porosity of soil
- What is the average resistance measured at field capacity by resistance blocks?
 - 400 – 600 ohms
 - 30000 – 35000 ohms
 - 60000 – 70000 ohms
 - > 70000 ohms
- The Parshall flume flow is considered free flow if it has the ratio of H_b/H_a
 - <0.5
 - >0.5
 - <0.75
 - >0.75
- Sprinkler irrigation method is also known as -----
 - Sub irrigation
 - Overhead irrigation
 - Trickle irrigation
 - All of the above
- Which of the following irrigation method is suitable for uneven and undulating field?
 - Border strip
 - Contour border

- | | |
|---------------------|----------------------|
| (iii) Wild flooding | (iv) Straight border |
|---------------------|----------------------|
- f Which of the following instrument is used to measure the soil tension?
- | | |
|----------------------|-----------------------|
| (i) Tensiometers | (ii) Gypsum blocks |
| (iii) Neutron meters | (iv) All of the above |
- g Which of the most suitable irrigation method is followed in wheat?
- | | |
|-----------------|-------------------|
| (i) Check | (ii) Border strip |
| (iii) Sprinkler | (iv) Surge |
- h Which of the following crop has the highest WUE?
- | | |
|---------------------|--------------|
| (i) Wheat | (ii) Sorghum |
| (iii) Finger millet | (iv) Rice |
- i What is the critical level of boron in irrigation water?
- | | |
|-------------|-------------|
| (i) 2 ppm | (ii) 4 ppm |
| (iii) 6 ppm | (iv) >6 ppm |
- j Which of the following material is used most for construction of sub surface drainage structures?
- | | |
|--------------------|--------------|
| (i) PVC | (ii) Wood |
| (iii) Brick/ stone | (iv) Fly ash |

Q4. Write True or False against each statement

(0.5 x 10 = 5 Marks)

- The Cipoletti weir could either be of the suppressed type or contracted type.
- The V-notch weir has both the sides sharp, bevelled from the downstream side only.
- Field capacity is the upper limit of available moisture range in soil and plant relationship.
- The finer the texture of the mineral soil particles, the greater is likely its capillary capacity.
- The irrigation requirement of sorghum is low when grown in sandy soils, as compared to clay loam soils.
- The pan coefficient increases with the increase in relative humidity.
- Corrugation irrigation is recommended on saline soils or when the irrigation water has a high salt content.
- In pressurized irrigation systems the fertilizer injection unit is located between the sand filter and the screen filter.
- Plant response to irrigation is better in drip irrigation as compared to other methods of irrigation.
- Anhydrous ammonia and aqua-ammonia are ideally suitable for use in fertigation.

PART – B

Attempt ANY FIVE questions. All question carries equal marks

(6 x 5 = 30 Marks)

- Define different types of furrow irrigation systems and their advantages and disadvantages.
- Describe the different bases of scheduling irrigation in wheat and chickpea.
- Describe the principle of tensiometer. Discuss briefly its advantages and disadvantages.
- Define integrated water resource management. Also discuss its principles.
- Justify that the sprinkler irrigation is a boon for dry land agriculture.
- Classify the irrigation water based on RSC, SAR and pH values.