

**B.Sc. (Ag.) Honours Semester-II Examination, 2019**

**Course No: AGR-121 (Old)**

**( Water Management Including Micro-irrigation )**

Signature of Centre Superintendent

**Roll No. :** (in figure) \_\_\_\_\_ (in words) \_\_\_\_\_

Student Index No. \_\_\_\_\_ Regn. No. \_\_\_\_\_ of \_\_\_\_\_

**Time : Two Hours**

**Full marks : 40**

Questions are of value as indicated in the margin

**Part - I**

**(Objective and Short Answer Type)**

**(Use only ball point pen)**

**Time : 20 minutes**

**Full marks : 10**

**Note:** 1. Answer in question paper itself.

2. Striking, rewriting or overwriting are not allowed in the objective type questions.

**1. State True (T) or False (F) in respect of the following statements (*any ten*):**

0.5×10=5

- a) CRI is a critical stage of irrigation in wheat. ☐
- b) Major source of irrigation in India is surface water. ☐
- c) Water holding capacity is maximum in crumb soil. ☐
- d) Drought tolerant crops have normally higher transpiration efficiency. ☐
- e) Absciscic acid can be used as anti-transpirant. ☐
- f) High osmotic potential of soil solution is due to higher salts concentration. ☐
- g) Tensiometer works well in clayey soil. ☐
- h) Mole drain is an open drainage system. ☐
- i) Plant growth is the maximum when soil water is near to one-third bar. ☐
- j) Sprinkler irrigation is suitable for undulating topography. ☐
- k) Drip irrigation is convenient for using saline irrigation water. ☐
- l) Capillary water is fully available to plants. ☐

**2. Underline the correct alternatives (*any ten*):**

0.5×10=5

- a) An example of CAM plant is sorghum / ber / rose / pineapple.
- b) An indicator plant for estimating PWP is cotton / sorghum / sunflower / chickpea.
- c) Sugarcane crop is most suitable under sprinkler / border strip / drip / check basin irrigation systems.
- d) A salinity tolerant rice variety is IR 64 / FR 13 / IET 4786 / CSR 1.
- e) In ideal soil condition, the air: water content should be 1:2 / 2:1 / 1:1 / 1:3 ratio.
- f) The grain yield of maize is 5.4 quintal/ha and water requirement is 60 cm, the crop water use efficiency will be 7 / 9 / 11 / 13 kg/ha-mm.
- g) The gravimetric water content of a soil 12% and BD 1.5 g/cc, the volume wetness of that soil will be 18 / 20 / 25 / 30 %.

**P.T.O.**

- h) Furrow irrigation can effectively be practiced in wheat / rice / maize / mustard.
- i) 40 cm is the water requirement in wheat / chickpea / rice / sunflower.
- j) The most common method of surface irrigation is check basin / border strip / furrow / surge irrigation.
- k) The moisture tension at hygroscopic coefficient is 15 / 31 / 60 / 100 bar.
- l) The average rainfall of India is 1050 / 1194 / 1250 / 1325 mm.

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**Part - II**  
**(Descriptive Type)**

**Time : 100 Minutes**

**Full marks : 30**

Questions are of value as indicated in the margin

**Answer *any four* questions from the following.**

3. What is irrigation efficiency? Mention the factors affecting irrigation efficiency. Suggest some measures to improve irrigation efficiencies. 1.5+2+4=7.5
  4. What is water requirement of a crop? Define irrigation scheduling. Write different approaches of irrigation scheduling based on soil and climate factors. 2+1.5+(2+2)+7.5
  5. Define agricultural drainage. What are the benefits of agricultural drainage? Write the ill effects of water logging on soil and plant. 1+2.5+(2+2)=7.5
  6. What do you understand by 'quality of irrigation water'? Classify the irrigation water based on salinity and sodium hazards. Mention the management strategies for raising good crop by poor saline water. 1+(2+2)+2.5=7.5
  7. Define soil moisture tension. Write down the factors influencing the water holding capacity of a soil. Discuss about the various techniques of moisture conservation. 1+3.5+3=7.5
  8. Write short notes on the following (*any three*) 2.5×3=7.5
    - a) Water use efficiency
    - b) Soil water potential
    - c) Objectives of irrigation
    - d) Role of water in plant
    - e) Water harvesting
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