

KERALA AGRICULTURAL UNIVERSITY

B.Tech (Agrl.Engg.) 2014 Admission

Vth Semester Final Examination-December-2016

Cat. No: Iden.3106.

Marks: 50.00

Title: Irrigation Engineering(2+1)

Time: 2 hours

I Fill up the blanks

(10x1=10)

1. The average annual rainfall of India over the geographical area amounts to ----- m ha m.
2. Water of adhesion is otherwise called ----- water.
3. ----- is the logarithm, to the base 10, of the reciprocal of the hydrogen-ion concentration in water.
4. The amount of work that a unit quantity of water in an equilibrium soil-water system is capable of doing when it moves to another equilibrium system identical in all respects except it is at a reference pressure is called -----
5. The ratio of crop yield to the amount of evapotranspiration is called -----
6. For the wheat crop, the most critical stage for irrigation is-----
7. The movement of water from the surface into the soil is called -----
8. ----- method of land leveling is adapted to the smoothening of steep lands that are to be irrigated.
9. The difference between the time the water front reaches a particular point along the border and the time at which the tail water recedes from the same point is called-----
10. Sprinkler irrigation is not suitable for soils with infiltration rate less than ----- mm/hr.

II Write short notes on any FIVE of the following

(5x2=10)

1. Potential Evapotranspiration.
2. Scheduling of irrigation.
3. Kinds of soil water.
4. Field water balance.
5. Surge irrigation.
6. Fertigation.
7. Warabandi.

III Write short answers on any FIVE

(5x4=20)

1. Describe the components of drip irrigation.
2. Describe the design procedure of a channel using Lacy's theory.
3. An irrigation stream of 25 l/s is diverted to a check basin of size 12m x 10m. The water holding capacity of the soil is 14%. The average soil moisture content in the crop root zone prior to applying water is 6.5%. how long the irrigation stream be applied to the basin to replenish the root zone moisture to its field capacity, assuming no loss due to deep percolation. The average depth of the crop root zone is 1.2m. The apparent specific gravity of the root zone soil is 1.50.
4. What are the advantages and disadvantage of sprinkler irrigation?
5. Explain how would you reclaim and manage salt affected soil?

6. Determine the system capacity for a sprinkler irrigation system to irrigate 20 hectares of maize crop. Moisture replenished in the soil in each irrigation is 6 cm and irrigation efficiency is 80%. 10 days are required for the completion of one irrigation. The system is to be operated for 20 hours per day.
7. Briefly describe the structures used in underground pipe conveyance system.

IV Write essay on any ONE

(1x10=10)

1. Give a detailed classification of irrigation methods. Describe in detail the applicability of border irrigation, its hydraulics and the different types.
2. List the different methods for direct and indirect measurements of evapotranspiration. Describe in detail the Modified Penman method.
