



KERALA AGRICULTURAL UNIVERSITY
B. Tech. (Agrl. Engg.) 2019 Admission
V Semester Final Examination – January 2022

Iden.3107

Sprinkler and Micro Irrigation Systems (1+1)

Marks: 50
Time: 2 hours

I Fill in the blanks

(10x1=10)

1. Maximum pressure variation in laterals is _____% of maximum operating pressure.
2. _____soil is suitable for sprinkler irrigation.
3. Calcium phosphate is _____ in water.

Answer the following

4. Give names of three nutrients that can be used in fertigation.
5. State Scooby's equation.
6. Define effective root zone depth.

Match the following

A

B

- | | |
|-------------------------|----------------------------------|
| 7. Clayey soil | a. $V = C. (MI)^{\frac{1}{2}}$ |
| 8. Drip irrigation | b. Low infiltration rate |
| 9. Sprinkler irrigation | c. Artificial Rainfall condition |
| 10. Chezy's equation | d. efficiency more than 90% |
| | e. $C = V. (MI)^{\frac{1}{2}}$ |

II Write short notes on ANY FIVE of the following

(5x2=10)

1. What is effective radius of distribution? What is the standardized angle for most of the sprinklers?
2. Why fertigation is recommended and in which condition it is not recommended?
3. Differentiate between semi portable and semi-permanent system.
4. What are the factors influencing the spray distribution pattern of a rotating head sprinkler?
5. What is the commonly used equipment in fertigation system?
6. Define infiltration and how it affects the choice of sprinkler irrigation system.
7. Determine the sprinkler capacity for a sprinkler irrigation system to irrigate 16 ha. of maize crop. Design moisture use rate is 5 mm/day. Moisture replaced in soil at each irrigation is 6cm. Irrigation efficiency is 70%. Irrigation period is 10 days in a 12 days interval. The system is to be operated for 20 hrs. per day.

III Answer ANY FIVE of the following

(5x4=20)

1. Give a short note on advantages and limitations of sprinkler irrigation. (4 points each)
2. Give a short note on micronutrients application and frequency of fertilizer application.
3. Give a short note on rotating head sprinkler system.(minimum 8 points)
4. Determine the required capacity of a sprinkler system to apply water at the rate of 2.50 cm/hr. Two 186m long sprinkler lines are required. Sixteen sprinklers are spaced at 12 meter intervals on each line. The spacing between lines is 18 meters.
5. Define uniformity coefficient and its usability with appropriate formula.
6. Chemical treatment for micro irrigation system.
7. Write in brief about the merits and demerits of drip irrigation system. (at least four points each)

IV Write an essay on ANY ONE of the following

(1x10=10)

1. Give an essay about components of fertigation system in micro irrigation system.
2. Give a detailed note about components used in drip irrigation system.
