



SIDDHARTH GROUP OF INSTITUTIONS: PUTTUR
Siddharth Nagar, Narayanavanam Road – 517583

QUESTION BANK (DESCRIPTIVE)

Subject with Code: 16AG718

Branch: B.Tech – Agricultural engineering

Year & Sem: IV-B.Tech & I-Sem

Regulation: R16

UNIT-I

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|---|----------------|
| 1) Define irrigation and explain the types of irrigation? | [L2] [CO1] 10M |
| 2) Define micro irrigation? Briefly explain about the types of micro irrigation | [L2] [CO1] 10M |
| 3) Define sprinkler irrigation? Explain the development of sprinkler irrigation in India | [L2] [CO1] 10M |
| 4) Define sprinkler irrigation? List out the adaptability & limitations of sprinkler irrigation | [L2] [CO1] 10M |
| 5) Explain about the different components of sprinkler irrigation? with neat diagram | [L2] [CO1] 10M |
| 6) Define surface irrigation? Explain the different methods of surface irrigation | [L2] [CO1] 10M |
| 7) Briefly explain about development of sprinkler irrigation? | [L2] [CO1] 10M |
| 8) List out the advantages & disadvantages of sprinkler irrigation system? | [L1] [CO1] 10M |
| 9) Difference between sprinkler and drip irrigation system? | [L3] [CO1] 10M |
| 10) Difference between surface irrigation and micro irrigation? | [L3] [CO1] 10M |

UNIT-II

- 1) Define sprinkler head and what are the types of sprinkler head? [L1] [CO2] 10M
- 2) Define fertigation and explain the types of fertilizers used in it? [L1] [CO2] 10M
- 3) Define fertigation & explain the frequency & quantity of fertilizer to be applied? [L2] [CO2] 10M
- 4) A lateral has 12 sprinklers spaced 14 metres apart. The laterals are spaced 20 metres on the main line. Determine the amount of fertilizer to be applied at each setting, when the recommended fertilizer dose is 80 kg/ha. [L3] [CO2] 10M
- 5) Explain the equipment & methods of fertilizer application devices? [L2] [CO2] 10M
- 6) Briefly explain about fertilizer injection devices? [L2] [CO2] 10M
- 7) Define sprinkler irrigation system & explain the classification of sprinkler irrigation? [L2] [CO2] 10M
- 8) Explain moisture distribution pattern of sprinkler irrigation system? [L2] [CO2] 10M
- 9) Briefly explain about uniformity coefficient of sprinkler irrigation? [L2] [CO2] 10M
- 10) Determine the uniformity coefficient from the following data obtained from a field test on a square plot bounded by four sprinklers:
 Sprinkler - 4.365×2.381 mm nozzles at 2.8 kg/cm²
 Spacing - 24 m \times 24 m
 Wind - 3.5 km/hr from south-west
 Humidity - 42 %
 Time of test - 1.0 hour [L3] [CO2] 10M

S	8.9	7.6	6.6	S
8.1	7.6	9.9	10.2	8.3
8.9	9.1	9.1	9.4	8.9
9.4	7.9	9.1	8.6	9.1
S	7.9	6.6	6.8	S

UNIT-III

- 1) Explain the design procedure of sprinkler irrigation system? [L2] [CO3] 10M
- 2) Determine the required capacity of a sprinkler irrigation system to apply water at the rate of 1.25 cm/hr. Two 186m long sprinkler lines are required. 16 sprinklers are spaced at 12 m interval on each line. The spacing between lines is 18m. [L3] [CO3] 10M
- 3) A farmer wishes to have his own pumping set for the following cropping pattern to be followed in his holding of 3 ha and his brother holding of 2 ha. Calculate the right size of discharge of the pump he should have. [L4] [CO3] 10M

Season crop	Area (ha)	Intensity of irrigation (cm)	Rotation period (days)	Period of work (ha/day)
Wheat	2	7.5	12	10
Cotton	0.4	7.5	20	10
Vegetables	0.4	7.5	10	10
Mustard	2.2	5.0	40	10

- 4) Determine the system capacity for a sprinkler irrigation system to irrigate 16 ha of maize crop. Design moisture use rate is 5 mm/day and moisture replaced in soil at each irrigation is 6 cm. Irrigation efficiency is 70 % and irrigation period is 10 days in 12 days interval. The system is to be operated for 20 hr/day. [L3] [CO3] 10M
- 5) Explain the different components and functions of sprinkler irrigation system with neat diagram? [L2] [CO3] 10M
- 6) Briefly explain about operation & maintenance of sprinkler irrigation system? [L2] [CO3] 10M
- 7) Explain the field evaluation of the sprinkler irrigation system? [L2] [CO3] 10M
- 8) Explain the cost analysis for the installation of sprinkler irrigation system? [L2] [CO3] 10M
- 9) Define clogging & explain the different types of clogging? [L2] [CO3] 10M
- 10) Define filter & explain the types of filters used in sprinkler irrigation? [L2] [CO3] 10M

UNIT-IV

- 1) Define drip irrigation & list out the advantages and limitation of drip irrigation? [L1] [CO4] 10M
- 2) Define drip irrigation & list out the adaptabilities of drip irrigation system? [L1] [CO4] 10M
- 3) Briefly explain the components of drip irrigation with layout? [L2] [CO4] 10M
- 4) Define drip irrigation & list out the limitation of sprinkler irrigation? [L1] [CO4] 10M
- 5) Explain historical development of sprinkler irrigation system? [L2] [CO4] 10M
- 6) Define dripper & explain the different types of drippers? [L2] [CO4] 10M
- 7) Explain about the different types of valves used in drip irrigation system? [L2] [CO4] 10M
- 8) Define filter & explain types of filters used in drip irrigation? [L2] [CO4] 10M
- 9) Define clogging & explain the different types of clogging? [L2] [CO4] 10M
- 10) Explain about hydraulics of drip irrigation system? [L2] [CO4] 10M

UNIT-V

- 1) Define emitter & explain the types of emitters? [L2] [CO5] 10M
- 2) Define emission uniformity in drip irrigation? [L2] [CO5] 10M
- 3) The following data were obtained in a field test to determine the emission uniformity of a drip irrigation lateral: [L3] [CO5] 10M
 $C_v = 0.07$, $q_{\min} = 45 \text{ lit/hr}$, $q_{\text{ave}} = 50 \text{ lit/hr}$, land slope = 1.5 %
- 4) Explain the design procedure of drip irrigation system? [L4] [CO5] 10M
- 5) Explain the operation & maintenance of drip irrigation system? [L2] [CO5] 10M
- 6) Explain the automation of drip irrigation systems? [L2] [CO5] 10M
- 7) The internal diameter of a 50 m long drip irrigation main pipe is 50 mm & the discharge rate, as obtained from the flow meter installed in the main line is 0.4 lit/sec. determine (i) The flow velocity.
(ii) The head loss due to friction in the main pipe. [L4] [CO5] 10M
- 8) Explain the chemical, acid & chlorine treatment of drip irrigation system? [L2] [CO5] 10M
- 9) Explain the computer software programs used for designing the drip irrigation system? [CO5] 10M
- 10) Briefly explain the types of sprinkler irrigation system? [L2] [CO5] 10M

Prepared by: **Tipperudramma N.**