



KERALA AGRICULTURAL UNIVERSITY
B.Tech.(Agri. Engg) 2016 Admission
IV Semester Final Examination-July 2018

Iden.2206

Irrigation Engineering (2+1)

Marks: 50

Time: 2 hours

- 1 Choose the correct answer. (10x1=10)**
- 1 Which of the following methods of applying water may be used on rolling land?
 - a. border irrigation
 - b. furrow irrigation
 - c. check basin
 - d. free flow
 - 2 The ratio of the quantity of water stored in the root zone of the crops to the quantity of water actually delivered in the field is known as
 - a) water conveyance efficiency
 - b) water application efficiency
 - c) water use efficiency
 - d) none of the above
 - 3 Infiltration rate is always
 - a) more than the infiltration capacity
 - b) less than the infiltration capacity
 - c) equal to or less than the infiltration capacity
 - d) equal to or more than the infiltration capacity
 - 4 A current meter is used to measure the
 - a) velocity of flow of water
 - b) depth of flow of water
 - c) discharge
 - d) none of the above
 - 5 The duty for a crop at the field is 800 ha/cumec. If the conveyance loss is 20 % then the duty at the head of the canal is
 - a) 900 ha/cumec
 - b) 666.66 ha/cumec
 - c) 640 ha/cumec
 - d) 960 ha/cumec
 - 6 Irrigation frequency is a function of
 - a) crop only
 - b) soil, crop and climate
 - c) soil, crop, climate and fertilizer
 - d) soil and climate
 - 7 For growing irrigated paddy, the ideal water application method is
 - a) furrow irrigation
 - b) check basin
 - c) border irrigation
 - d) sprinkler irrigation
 - 8 For standing crops in undulating sandy fields, the best method of irrigation, is
 - a) sprinkler irrigation
 - b) free flow
 - c) check basin
 - d) furrow irrigation
 - 9 A border strip is to be irrigated by a stream with a discharge of 0.04 cumec. If the average infiltration rate is 4 cm/hr, then the maximum area of strip that can be irrigated is
 - a) 0.15 ha
 - b) 0.23 ha
 - c) 0.52 ha
 - d) 0.36 ha
 - 10 The side slope of Cipolletti weir is generally kept
 - a) 1:2
 - b) 1:4
 - c) 1:3
 - d) 2:5

P.T.O

II Write short notes on ANY FIVE (5x2=10)

- 1 Measurement of consumptive use
- 2 Night Irrigation
- 3 Suitability of pressure irrigation systems
- 4 Adaptability of Border irrigation
- 5 Profile method of land levelling
- 6 Cost analysis of surface irrigation distribution system.
- 7 Conveyance losses

III Answer any FIVE of the following. (5x4=20)

- 1 Define different kind of irrigation efficiencies and their practical significance.
- 2 Describe briefly the factors affecting duty. Water is released at the rate of 5 cumecs at the head sluice. If the duty at the field is 100ha/cumec and the loss of water in transit is 30% find the area of the land that can be irrigated.
- 3 An irrigation stream of 27 lps is diverted to a check basin of size 12 m x 10 m. The water holding capacity of the soil is 14 %. The average soil moisture in the crop root zone prior to applying water is 6.5%. How long should the irrigation stream be applied to the basin to replenish the root zone moisture to its field capacity, assuming no loss to deep percolation. The average depth of crop root zone is 1.2 m. The apparent specific gravity of the root zone soil is 1.5.
- 4 What do you understand by land levelling? With the help of suitable sketches, discuss the profile method in detail.
- 5 What do you understand by seepage? Discuss the causes and remedial measure to reduce the seepage in field channels, in brief.
- 6 What are the various types of pipe network? Discuss their suitability and limitations, in brief.
- 7 What do you understand by soil water? How it is measured?

IV Answer any ONE of the following (1x10=10)

- 1 Environmental impact of irrigation projects
- 2 Field channel design
