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Question Paper Code: 95A01

B.E./B.Tech. DEGREE EXAMINATION, MAY 2022

Fifth Semester

Agriculture Engineering

19UAG501 – IRRIGATION AND DRAINAGE ENGINEERING

(Regulation 2019)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. The ratio of the quantity of water stored in the rootzone of the crops to the quantity of water actually delivered in the field is known as CO1- R
(a) water conveyance efficiency (b) water application efficiency
(c) water use efficiency (d) none of the above
2. Δ is the depth of water in metres, B is the number of days of base period and D is the duty in hectare/cumec, the relationship which holds good, is CO1- R
(a) $D = \Delta (8.64 D/B)$ (b) $B = \Delta (8.64 B/D)$ (c) $D = (8.6 \Delta/B)$ (d) $\Delta = (8.6 B/D)$
3. The method of growing crops on ridges, running on the sides of water ditches, is known as CO2- R
(a) flood irrigation (b) furrow irrigation
(c) check-irrigation (d) none-of-them
4. Which of the following method of applying water may be used on rolling land? CO2- R
(a) Boarder flooding (b) check flooding (c) furrow flooding (d) free flooding
5. The major resisting force in a gravity dam is CO3- R
(a) water pressure (b) wave pressure (c) self weight of dam (d) uplift pressure
6. The main function of a diversion head works of a canal from a river, is CO3- R
(a) To remove silt (b) To control floods (c) To store water (d) To raise water level

7. Canals taken off from ice-fed perennial rivers, are known CO4- R
 (a) Permanent canals (b) Rigid canals
 (c) Perennial canals (d) Inundation canals
8. The canal regulator which is constructed at a diversion headwork is called CO4- R
 (a) cross regulator (b) distributary head regulator
 (c) canal module (d) none of the above
9. How can tile drainage help to increase crop yields? CO5- R
 (a) Increases Free Gravity Water (b) Increases Volume of Soil
 (c) Decrease Air Circulation (d) Increases Water Table Level
10. Manholes and sedimentation basins are placed between CO5- R
 (a) 50cm below ground surface (b) 60cm below ground surface
 (c) 55cm below ground surface (d) 30cm below ground surface

PART – B (5 x 2= 10Marks)

11. What are the necessities of irrigation? CO1- R
12. Write the assumptions made in Kennedy's theory. CO2- R
13. What are the factors affecting the selection of type of a dam. CO3- R
14. What is mean by canal escape. CO4- R
15. What are the difference between surface and subsurface drainage system? CO5- R

PART – C (5 x 16= 80 Marks)

16. (a) Briefly discuss about water resources in India and tamil nadu. CO1-U (16)

Or

- (b) A stream of 140litres per second was diverted from a canal and 100litres per second were delivered to the field. An area of 1.6 hectares was irrigated in 8 hours. The effective depth of root zone was 1.8 m. the runoff loss in the field was 432 cu.m. The depth of water penetration varied linearly from 1.8 m at the head end of the field to 1.2 m at the tail end. Available moisture holding capacity of the soil is 20 cm per meter depth of soil. Determine the water conveyance efficiency, water application efficiency, water storage efficiency and water distribution efficiency. Irrigation was started at a moisture extraction level of 50 percent of the available moisture. CO1-Ana (16)
17. (a) Briefly describe and discuss the various methods of Lining canals. Give a cross section of lined canal CO2-U (16)
- Or
- (b) What are the essential components of drip irrigation system? Draw a layout plan of the drip irrigation system. CO2-U (16)
18. (a) What are the types of weirs and Explain various components of weir. CO3-U (16)
- Or
- (b) Explain in detail about various components of diversion headwork and draw layout. CO3- U (16)
19. (a) Explain in detail about the canal outlet. CO4- U (16)
- Or
- (b) How canals are generally classified? Describe them briefly. CO4- U (16)
20. (a) Explain in detail about surface and subsurface drainage systems CO5- U (16)
- Or
- (b) Briefly discuss about recycling of drainage water for irrigation. CO5- U (16)

