Reg. No. : | | | | | | | | | | |

Question Paper Code: 95A01

B.E./B.Tech. DEGREE EXAMINATION, NOV 2023

Fifth Semester

Agriculture Engineering

19UAG501 – IRRIGATION AND DRAINAGE ENGINEERING

(Regulations 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- U

   (a) water conveyance efficiency (b) water application efficiency

   (c) water use efficiency (d) none of the above

2. Optimum depth of kor watering for rice is CO1- U

   (a) 135 mm (b) 165 mm (c) 190mm (d) 215mm

3. Which of the following method of applying water may be used on rolling land? CO1- U

   (a) Boarder flooding (b) check flooding (c) furrow flooding (d) free flooding

4. Sprinkler irrigation method was started in CO1- U

   (a)1900 (b)1990 (c)1982 (d)1920

5. The major resisting force in a gravity dam is CO1- U

   (a) water pressure (b) wave pressure (c) self weight of dam (d) uplift pressure

6. Which of the following spillways is least suitable for an earthen dam? CO1- U

   (a) ogee spillway (b) chute spillway (c) side channel spillway (d) shaft spillway

7. Canals taken off from ice-fed perennial rivers, are known CO1- U

(a) permanent canals (b) Rigid canals (c) perennial canals (d) Inundation canals

8. When a canal and a drainage approach each other at the same level, the structure so provided,is CO1- U

(a) An aqueduct (b) A syphon (c) A level crossing (d) Inlet and outlet

9. The field measurement of infiltration is done by _____ CO1- U

(a) potentiometer (b) lysimeter (c) infiltrometer (d) tensiomete

10. The life of cement concrete pipe is at least CO1- U

(a) 56 years (b)75 years (c) 60 years (d) 30 years

PART – B (5 x 2= 10Marks)

11. Calculate the water distribution efficiency, if the depths of penetration along the length of a border strip at an interval of 20m are 1.5m,1.8m and 2.1 m respectively. CO2- App

12. Write the assumptions made in Kennedy's theory. CO1- U

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 tamilnadu. CO1-U (16)

Or

(b) A stream of 135 litres 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. CO2-App (16)

17.	(a)	Explain in detail about surface and sub surface method of irrigation.	CO1-U	(16)
		Or		
	(b)	Explain in detail about erodible and non erodible canal design theories.	CO1-U	(16)
18.	(a)	What are the forces acting on a dam and explain them with neat sketch.	CO1-U	(16)
		Or		
	(b)	Explain in detail about the different types of dams with neat sketches.	CO1-U	(16)
19.	(a)	Explain in detail about the canal outlet.	CO1- U	(16)
		Or		
	(b)	How canals are generally classified? Describe them briefly.	CO1- U	(16)
20.	(a)	Explain in detail about surface and subsurface drainage systems	CO1- U	(16)
		Or		
	(b)	Explain in detail about different types of tile drainage system	CO1- U	(16)