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Question Paper Code: R1703

B.E./B.Tech. DEGREE EXAMINATION, NOV 2025

Professional Elective

R21CEV703 -WATER RESOURCES AND IRRIGATION

Civil Engineering

(Regulations R2021)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. Define the hydrological cycle and explain its components. CO1-U
2. State the methods to reduce evaporation CO1-U
3. What are the advantages of Unit Hydrograph? CO1-U
4. List out the factors you think might affect runoff. CO1-U
5. Define irrigation. CO1-U
6. State two advantages of irrigation. CO1-U
7. Define a weir. CO1-U
8. Distinguish between a weir and a barrage. CO1-U
9. List two advantages of well irrigation. CO1-U
10. State any two types of micro irrigation methods. CO1-U

PART – B (5 x 16= 80 Marks)

11. (a) Explain the hydrologic cycle with a neat diagram and describe its major processes. CO1 – U (16)
- Or
- (b) Define a watershed. Discuss watershed and catchment characteristics that influence runoff and water availability. CO1 – U (16)

12. (a) Describe the factors affecting runoff and explain their influence with suitable examples. **CO1 – U (16)**
- Or
- (b) Define a hydrograph. Describe the different components of a hydrograph with neat sketches. **CO1 – U (16)**
13. (a) As a irrigation expert explain the importance of considering the factors of precipitation and evaporation. **CO3-App (16)**
- Or
- (b) A channel is to be designed for irrigating 5000 hectares in Kharif crop and 4000 hectares in Rabi crop. The water requirement for Kharif and Rabi are 60 cm and 25 cm, respectively. The Kor period for Kharif is 3 weeks and for Rabi is 4 weeks. Determine the discharge of the channel for which it is to be designed. **CO3 – App (16)**
14. (a) Examine the design, construction, and maintenance aspects of canal lining and how they influence irrigation efficiency. **CO4-Ana (16)**
- Or
- (b) Evaluate the design features and energy dissipation arrangements of a spillway with a neat sketch. **CO4-Ana (16)**
15. (a) Investigate the factors affecting irrigation efficiencies and assess their implications for sustainable irrigation practices. **CO5–Ana (16)**
- Or
- (b) Evaluate the effectiveness of participatory irrigation management through a real-world case study. **CO5–Ana (16)**