



B.E- DEGREE EXAMINATIONS: NOV/DEC 2023

(Regulation 2018)

Seventh Semester

CIVIL ENGINEERING

U18CET7002 - Irrigation and Water Resource Management

COURSE OUTCOMES

CO1: Infer the water resource requirement.

CO2: Summarize the water resource management strategies adopted

CO3: Estimate the consumptive use of water and design of canal lining

CO4: Understand the components of various hydraulic structures.

CO5: Classify various irrigation methods and prepare the irrigation scheduling for various crops.

Time: Three Hours

Maximum Marks: 100

Answer all the Questions: -

PART A (10 x 2 = 20 Marks)

(Answer not more than 40 words)

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|---|-----|-------------------|
| 1. What are multipurpose dams? Give any two examples from Tamil Nadu | CO1 | [K ₂] |
| 2. Name the different types of water resources in India | CO1 | [K ₂] |
| 3. Differentiate flood and drought and mention their ill effects | CO2 | [K ₂] |
| 4. Summarize the purposes of dead storage in dams | CO2 | [K ₂] |
| 5. If rice requires about 10 cm depth of water at an average interval of 10 days, and the crop period for rice is 120 days, find out the delta for rice. | CO3 | [K ₂] |
| 6. One cumec of water is pumped from a well located at a distance of 0.90 km, into a field and at field, it is found that 0.5 cumec is delivered. Compute the conveyance efficiency. Comment your result. | CO3 | [K ₂] |
| 7. Classify Canals based on its alignment and state their merits and demerits | CO4 | [K ₂] |
| 8. Mention the importance of canal lining | CO4 | [K ₂] |
| 9. What is Panchagavya in organic farming and give its uses? | CO5 | [K ₂] |
| 10. What is basin method of irrigation? Give an example | CO5 | [K ₂] |

Answer any FIVE Questions: -
PART B (5 x 16 = 80 Marks)
(Answer not more than 400 words)

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|-----|----|--|----|-----|-------------------|
| 11. | a) | Briefly state the various steps needed for planning an irrigation project and list the various objectives of water resources development in the context of the lesser developed countries. | 10 | CO1 | [K ₂] |
| | b) | State the salient features of National Water Policy. | 6 | CO1 | [K ₂] |
| 12. | a) | Suggest various ways and means to manage and mitigate flood and drought | 10 | CO2 | [K ₃] |
| | b) | Discuss the application of Geographical Information System and Remote Sensing in the effective management water resources | 6 | CO2 | [K ₃] |
| 13. | a) | Define the term Consumptive Use or Evapotranspiration of water. Enlist the factors affecting it. Also explain any one method of Measuring the same. | 10 | CO3 | [K ₃] |
| | b) | Derive the relationship between Duty, Delta and Base Period of a crop and then find out the value of delta for wheat crop, if wheat requires about 7.5 cm of water after every 28 days, and the base period for wheat is 140 days. | 6 | CO3 | [K ₃] |
| 14. | a) | Define the term Cross drainage works. List its type and explain any two with neat sketches | 10 | CO4 | [K ₃] |
| | b) | Compare the Kennedy's and Lacey's theories of canal design for regime Channel | 6 | CO4 | [K ₃] |
| 15. | a) | State the necessity, objectives and issues in implementation of Participatory Irrigation Management. | 10 | CO5 | [K ₂] |
| | b) | Compare the drip irrigation and sprinkler irrigation on technical grounds | 6 | CO5 | [K ₂] |
| 16. | a) | A channel is to be designed for irrigating 5000 hectares in Kharif crop and 4000 hectares of Rabi crop. The water requirement for Kharif and Rabi are 60 cm and 25cm, respectively. The Kor period for Kharif is 3weeks and for Rabi is 4weeks. Find the crop ratio and determine the discharge of the channel for which it is to be designed? Comment your results. | 10 | CO4 | [K ₃] |
| | b) | 10 cumec of water is delivered to a 32-hectare field, for 4 hours. Soil probing after the irrigation indicates that 0.3 meter of water has been stored in the root zone. Compute the water application efficiency. | 6 | CO3 | [K ₃] |
