

TED (10)–4002
(REVISION—2010)

Reg. No.
Signature

FOURTH SEMESTER DIPLOMA EXAMINATION IN CIVIL
ENGINEERING —MARCH, 2012

IRRIGATION ENGINEERING

[Time : 3 hours

(Maximum marks : 100)

Marks

PART—A

I Answer the following questions in one or two sentences. Each question carries 2 marks.

1. Differentiate between perennial irrigation and inundation irrigation.
2. Mention any two uses of a weir.
3. Mention any four types of spill ways commonly used in dams.
4. Mention the situation where a canal drop is provided.
5. 'Delta of crops determines the duty'. Justify the statement.

(5×2=10)

PART—B

II Answer *any five* of the following questions. Each question carries 6 marks.

1. How irrigation can become disadvantageous ?
2. Derive the relationship between duty and delta.
3. Differentiate between storage head work and diversion head work.
4. What are the forces acting on a gravity dam ?
5. List the various methods of irrigation and its suitability.
6. What are the functions of fish ladder and marginal bund in a weir ?
7. Compare the special features of drip irrigation over conventional methods.

(5×6=30)

PART—C

(Answer one full question from each unit. Each question carries 15 marks.)

UNIT—I

- | | | |
|-----|---|---|
| III | 1. Differentiate between crop period and base period. | 5 |
| | 2. What are the factors which necessitate irrigation ? | 5 |
| | 3. What is the significance of catchment area in the designing of irrigation projects ? | 5 |

OR

- | | | |
|----|---|---|
| IV | 1. What are the factors which affect the duty of irrigation ? | 5 |
| | 2. How is rainfall measured and expressed ? What are the types of rain gauges ? | 5 |
| | 3. Explain any one method to calculate runoff. | 5 |

UNIT—II

- | | | | |
|---|----|--|---|
| V | 1. | What is meant by a canal head works ? What are its functions ? | 5 |
| | 2. | Under what circumstance a barrage is preferred over a weir. | 5 |
| | 3. | What is the significance of cut off wall in hydraulic structures ? | 5 |

OR

- | | | | |
|----|----|--|---|
| VI | 1. | Explain what is meant by percolation gradient. | 5 |
| | 2. | What are the provisions made in a weir to minimize uplift pressure ? | 5 |
| | 3. | Draw the sketch of weir and mark the parts. | 5 |

UNIT—III

- | | | | |
|-----|----|---|---|
| VII | 1. | What are the causes for the failures of earthen dams ? | 5 |
| | 2. | What are the necessary conditions for the suitability of arch dam ? | 5 |
| | 3. | How a contour map can be used for determining the capacity of reservoir ? | 5 |

OR

- | | | | |
|------|----|---|---|
| VIII | 1. | What are the functions of spill ways and gates ? Draw the profile of an ogee spill way. | 5 |
| | 2. | Compare the main features of arch dam, gravity dam and earthen dam. | 5 |
| | 3. | Differentiate between low dam and high dam. | 5 |

UNIT—IV

- | | | | |
|----|----|--|---|
| IX | 1. | Explain the significance of balancing depth of cutting. | 5 |
| | 2. | List different cross drainage works and mention where they are provided. | 5 |
| | 3. | Outline the arrangements of a drip irrigation system with a block diagram. | 5 |

OR

- | | | | |
|---|----|--|---|
| X | 1. | Compare sprinkler irrigation system with drip irrigation system. | 5 |
| | 2. | What are the different methods for preventing soil erosion ? | 5 |
| | 3. | What are the advantages of canal lining ? List the materials used. | 5 |