


R. JEELEP  
TED (10)-4002  
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Sq-CE

Mansoor, K.

Reg. No. 11011340

Signature 

FOURTH SEMESTER DIPLOMA EXAMINATION IN CIVIL  
ENGINEERING—OCTOBER, 2012

IRRIGATION ENGINEERING

[Time : 3 hours

(Maximum marks : 100)

PART—A

Marks

I Answer *all* questions in one or two sentences. Each question carries 2 marks.

1. Differentiate between flow irrigation and lift irrigation.
2. What is the main cause of uplift in hydraulic structures ?
3. Mention any two uses of drainage gallery in dams.
4. Classify the canals based on the alignment.
5. What are the two major crop seasons of India ?

(5x2=10)

PART—B

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

1. What are the situations in India which demands irrigation ?
2. Draw the hydrologic cycle and mark the movement of water.
3. What are the functions of canal head works ?
4. What are the data to be collected during the site investigation for a dam ?
5. Sketch the cross section of a canal partially in cutting and partially on embankment. What is the use of borrow pit ?
6. List the regulating arrangement provided in canals and mention their functions.
7. Mention various cross drainage works and the location where they are provided.

(5x6=30)

PART—C

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

UNIT - I

- III (a) What are the factors which affect the runoff ? 7
- (b) What is the importance of calculating the maximum flood discharge ? How the flood discharge is measured using Dicken's formula ? 8

OR

- IV (a) What are the factors which affect the duty of irrigation ? Differentiate between head duty and field duty ? 7
- (b) Water is released at the rate of 5 cumec at head sluice. If the duty at the field is 100 hectare/cumec and the loss of water in transit is 30%, find the area of land that can be irrigated. 8

## UNIT - II

- V (a) Where a weir can be ideally located ? Mention two functions of a weir. 7
- (b) Draw the sketch of weir and mark the parts. 8

OR

- VI (a) What are the functions of guide banks, marginal bunds and fish ladder in a weir ? 7
- (b) What is significance of percolation gradient and creep length in the design of Hydraulic structures ? 8

## UNIT - III

- VII (a) Discuss the cause of failures of earthen dams and their preventive measures. 7
- (b) How a contour map can be used for determining the capacity of reservoir and aligning the canal ? 8

OR

- VIII (a) Discuss the features and suitability of different types of dams. 7
- (b) Differentiate between low dam and high dam. Draw the profile of a low gravity dam. 8

## UNIT - IV

- IX (a) What is meant by regime channel ? Explain the significance of balancing the depth of cutting. 7
- (b) Explain the arrangements of a drip irrigation system using a block diagram. Discuss the salient features of drip irrigation. 8

OR

- X (a) What are the problems due to soil erosion and suggest remedial measures to prevent soil erosion ? 7
- (b) List the different methods of irrigation systems mentioning their suitability. 8