

B.E. Civil Engineering (Model Curriculum) Semester - VII  
**PCC-2 - Irrigation Engineering**

P. Pages : 2

Time : Three Hours



**GUG/S/23/14286**

Max. Marks : 80

- Notes :
1. All questions carry equal marks.
  2. Due credit will be given to neatness and adequate dimensions.
  3. Assume suitable data wherever necessary.
  4. Illustrate your answers wherever necessary with the help of neat sketches.

1. a) Determine the field capacity of a soil for the following data: 8
- i) Depth of root zone = 1.7 m
  - ii) Existing soil moisture = 8.1%
  - iii) Dry density of soil =  $1445 \text{ kg / m}^3$
  - iv) Quantity of water applied to the soil =  $650 \text{ m}^3$
  - v) Water loss due to deep percolation and evaporation = 9%.
  - vi) Area to be irrigated =  $1000 \text{ m}^3$

- b) Describe various methods of surface irrigation. 8

**OR**

2. a) Define Duty, delta and base period? Derive relation between them. 8
- b) Define irrigation and discuss the benefits and ill effects of irrigation? 8
3. a) Explain with a neat sketch of the storage level and storage zone in a reservoir. 8
- b) i) Discuss various factors required for selection of site for a reservoir. 4
- ii) Explain reservoir sedimentation with neat sketch. 4

**OR**

4. a) Explain in brief various types of an investigation required for reservoir planning. 8
- b) What is water logging? Write the causes, effects and remedial measures of water logging. 8
5. a) Distinguish between elementary and practical profile of gravity dam? 8
- b) Explain in details forces acting on gravity dam. 8

**OR**

6. a) Draw typical section of earthen dam and explain in details. 8  
b) State and explain various types of earthen dam with neat sketch. 8
7. a) Design an irrigation channel to carry a discharge of  $50 \text{ m}^3 / \text{s}$  by Kennedy's theory. Assume a slope 1 in 5000,  $n = 0.025$  and  $m = 1.0$ . 8  
b) Explain various types of canal lining. 8

**OR**

8. a) Compare Kennedy's and Lacey's theory. What are the drawbacks of the both theories. 8  
b) Design a regime channel for a discharge of 50 cumec and silt factor 1.1 by using Lacey's theory. 8
9. a) What do you understand by head regulator? State function of a distributory head regulator and a cross regulator? 8  
b) What is Weir and compare the Weir and barrage. 8

**OR**

10. a) Explain components of diversion head work with neat sketch. 8  
b) Describe in brief various types of canal fall. 8

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