

**R 8151**

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2006.

Seventh Semester

Civil Engineering

CE 432 — IRRIGATION ENGINEERING

(Including drawing)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define : Irrigation. What is its necessity ?
2. What is wilting point?
3. Explain the term : Net Irrigation Requirement (NIR).
4. If rice requires about 12 cm depth of water at an average interval of about 10 days and the crop period for rice is 130 days, find out the delta for rice.
5. List crops suitable to be grown under sprinkler irrigation.
6. What is meant by a diversion head work?
7. What is meant by river training works?
8. What are the types of cross drainage works?
9. Suggest some measures for reducing irrigation water losses.
10. What does the term "Turn over" means in irrigation management?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain the advantages and ill effects of assured irrigation. (8)  
(ii) Distinguish between flow irrigation and lift irrigation. Explain the types of flow irrigation. (8)

Or

- (b) Write short notes on :
- (i) Soil water
  - (ii) Soil available water
  - (iii) Water holding capacity
  - (iv) Soil-water-plant relationship. (4 × 4 = 16)
12. (a) Explain the following methods for estimation of consumptive use,
- (i) Blaney-Criddle equation (8)
  - (ii) Hargreaves class A pan evaporation method. (8)
- Or
- (b) (i) Explain factors that affect duty of irrigation water. (8)
- (ii) Derive the relationship between duty and delta. (8)
13. (a) Explain in detail, the component parts of a irrigation network. (16)
- Or
- (b) (i) Explain the various types of canal lining. (8)
- (ii) Describe the design procedure of a lined canal. (8)
14. (a) (i) Explain the types of canal escapes with neat sketches. (8)
- (ii) Discuss the need for irrigation water management. (8)
- Or
- (b) Discuss the various types of cross drainage works used in canal systems. Illustrate by drawing, a neat sketch of each type of structure. (16)
15. (a) (i) Explain the need for inter disciplinary approach in irrigation management.
- (ii) Write briefly the roles of farmers and Government in irrigation management.
- Or
- (b) (i) List various irrigation efficiencies, define each of them.
- (ii) What are the typical overall efficiency of surface irrigation, how can it be improved?
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