

T 8094

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

Fifth Semester

Civil Engineering

CE 1301 — IRRIGATION ENGINEERING

(Common to B.E. (Part-time) Fourth Semester R 2005)

(Regulations 2004)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are the benefits of irrigation?
2. Distinguish between Kharif crops and Rabi crops.
3. What is meant by Gross commanded area?
4. State the relationship between duty and delta.
5. Define the term base period.
6. What is meant by canal escape?
7. What is the need for a canal fall across a canal?
8. List the advantages of diversion head works.
9. What is meant by participatory irrigation management?
10. What is meant by on farm development?

PART B — (5 × 16 = 80 marks)

11. (a) Explain the term duty and explain in detail about the various factors affecting duty and various methods of improving duty. (16)

Or

- (b) (i) Define the following terms as used in irrigation practice.
(1) Field capacity
(2) Available moisture
(3) Consumptive use. (8)
(ii) What are the merits and demerits of irrigation? (8)

12. (a) (i) Explain in detail about sprinkler irrigation and how far it is suitable in Indian conditions. (8)
(ii) Define surface irrigation. Why is it a widely practised method of irrigation? What are the advantages and disadvantages of the method? (8)

Or

- (b) (i) Explain Drip irrigation. What are its merits and demerits? (8)
(ii) Define sub-surface irrigation. What are the essential requirements for a successful sub-surface irrigation? (8)

13. (a) (i) Explain the terms weir and what are the classifications in weir. (8)
(ii) What are the types of dams and what are the comparative merits and demerits of various types of dams? (8)

Or

- (b) (i) What are the factors affecting location and type of dams? (8)
(ii) What are the forces acting on a dam and explain it with a neat sketch? (8)

14. (a) (i) State under what circumstances you will recommend use of cross drainage structures (1) syphon (2) inlet (3) aqueduct. Draw a neat sketch to illustrate any one of them. (8)
(ii) Design an irrigation canal in clayey alluvial soil for full supply discharge = 35 cumecs, coefficient of roughness 0.025 canal side slope 1 : 1, longitudinal slope 1 in 5000. Also check for critical velocity ratio, allowable, CVR is 0.9 to 1.1. (8)

Or

(b) (i) What is the necessity of river training works? Describe in brief different types of river training works. (8)

(ii) What is meant by guide banks? What are their functions and effects? (8)

(a) (i) What is meant by percolation ponds? Draw a neat sketch of a percolation pond. (8)

(ii) What are the steps to be taken to minimise irrigation water losses? (8)

Or

(b) (i) What is the need for water users association? (8)

(ii) What is the need for optimisation of water use? (8)
