

B.E. DEGREE EXAMINATIONS: NOVEMBER 2009

Fifth Semester

CIVIL ENGINEERING

U07CE501: Irrigation Engineering

Time: Three Hours

Maximum Marks: 100

Answer ALL the Questions:-

PART A (10 × 1 = 10 Marks)

1. Which one the following is NOT a benefit of irrigation?
A. Protection from famine B. Inland navigation
C. Aid in civilization D. Damp climate
2. Water storage efficiency is the ratio of water stored in the root zone during irrigation to _____
A. Water delivered to the farm B. Water supplied from the river
C. Water used beneficially D. Water needed in the root zone prior to irrigation
3. The main problem in the sprinkler irrigation is
A. Erosion B. Land preparation
C. Wind D. Labour cost
4. What is the diameter of drip nozzles?
A. 0.5 mm to 1.0 mm B. 0.05 mm to 0.1 mm
C. 0.1 mm to 0.5 mm D. 1.0 mm to 2.0 mm
5. In a masonry weir, the major part of ponding is achieved by
A. Shutters B. Gates C. Raised crest D. Cut-offs
6. What should be the velocity of water in fish ladder?
A. 3.0 m/s B. 0.3 m/s C. 5.0 m/s D. 0.5 m/s
7. The time factor is the ratio of the number of days the canal has actually to run to the____
A. Base period B. Crop period
C. Kor watering D. Overlap allowance

8. The evaporation losses comprising of _____ % of total losses in a channel flow.
 A. 25 to 50 B. 2.5 to 5.0 C. 2.0 to 3.0 D. 20 to 30
9. Relation between the communities and the natural resources can be revealed through
 A. Water user associations B. On farm development
 C. Canal irrigation management D. Participatory irrigation management
10. The main objective of canal lining is to
 A. Reduce the seepage losses B. Increase the bed level
 C. Increase the water table D. Reduce the health effects

PART B (10 × 2 = 20 Marks)

11. What do you mean by crop ratio?
 12. Define the term “paleo irrigation”?
 13. Differentiate lift irrigation and canal irrigation?
 14. State the demerits of sprinkler irrigation systems?
 15. What do you mean by afflux?
 16. What are the forces acting on a gravity dam?
 17. What is meant by gross commanded area?
 18. Write a short note on siphon aqueduct?
 19. What are the objectives of participatory irrigation management?
 20. What are the measures to control water logging?

PART C (5 × 14 = 70 Marks)

- 21.(a) (i) What is the relationship between the duty and delta? (2)
 (ii) Explain in detail about the factors affecting duty. (12)

(OR)

- (b) What are the types of irrigation efficiencies? Explain them with suitable expressions.(14)

22. (a) What are the various methods of flooding? Explain them in detail. (14)

(OR)

(b) (i) What do you mean by tank irrigation? Explain about isolated tanks and tanks in series. (8)

(ii) What are the differences between lift irrigation and gravity flow irrigation? (6)

23. (a) What is meant by a weir? Explain the different types of weirs with neat sketches. (14)

(OR)

(b) What are the causes of failures in earthen dams? Explain them in detail with neat sketches. (14)

24. (a) (i) Explain the different types of alignment of canal with suitable diagrams. (6)

(ii) An irrigation canal has gross commanded area of 80,000 hectares out of which, 85% is culturable commanded area. The intensity of irrigation for kharif season is 30% and for the rabi season is 60%. Find the discharge required at the head of the canal if the duty at the head is 800 hect/cumec for the kharif season and 1700 hect/cumec for rabi season. (8)

(OR)

(b) What is meant by cross drainage work? Explain in detail about their classifications with neat sketches. (14)

25. (a) Define the optimum use of water and describe in detail about the need of optimization of water use? (14)

(OR)

(b) Explain in detail about the On Farm Development Works. (14)
