

## Irrigation Engineering (IE)

### IMPORTANT QUESTIONS FOR GTU EXAMS

#### Repeated Questions

1. Explain the terms:  
(i) Duty (ii) Delta and (iii) Base period. Derive the relation between Duty, Delta and Base period.
2. What do you mean by water logging of soil? How would you prevent it?
3. What is Diversion headwork? Sketch typical layout of a diversion headwork scheme and explain the importance of the scouring sluices.
4. What is canal escape? Discuss different types of canal escapes.
5. Explain Khosla's method of independent variables.
6. Explain Bligh's Creep Theory in details.
7. What are the advantages and disadvantages of canal lining?
8. Define 'Irrigation'. State the advantages and ill-effects of irrigation.
9. Describe the method of designing an irrigation canal based on Lacey's theory.
10. Explain water-logging. What are the causes of water-logging? Discuss, in detail, the precautionary measures for water-logging.
11. Describe various methods of surface irrigation.
12. Discuss necessity and location of canal fall. Describe comparative merits and demerits of notch fall and sarda fall.
13. What is canal fall? Why is it necessary to provide a fall in a canal? Explain with sketch Ogee fall.
14. Explain the procedure of designing an irrigation channel with Kennedy's theory, when  $Q$ ,  $N$ ,  $m$  and  $S$  are given.

## TECHNICAL CIVIL

15. Write the design features for Boarder Strip Flooding irrigation method.
16. Describe the following irrigation methods with sketches:
  - a. (i) Check basin flooding method.      (ii) Drip irrigation method
17. Describe with the help of sketches various types of Cross drainage works.
18. What are the functions of cross regulator and head regulator?
19. Distinguish, clearly, between Application efficiency and Storage efficiency. State the measures to improve the water application efficiency
20. Discuss, in brief, Kennedy's silt theory for the design of unlined channel. Explain 'regime channel' and state different regime conditions. Given the Lacey's regime equations, obtain the relation between wetted perimeter (P) and discharge (Q).
21. Distinguish between 'exit gradient' and 'safe exit gradient'.
22. Explain different types of Aqueduct and discuss the factors affecting the selection of a suitable type of aqueduct.
23. Explain the necessity of canal fall in a canal system. Why is the 'Cistern' provided below the canal fall?
24. Write short note on (1) Canal alignment (2) Balancing depth of canal
25. Describe the causes of failure of weir on pervious foundation and their remedies.
26. Explain the various irrigation efficiencies.
27. Discuss the factors affecting duty.
28. Compare Lacey's and Compare Lacey's and Kennedy's silt theory.
29. Explain with neat sketch classification of soil-water in detail.
30. Define Canal. Explain classification of Irrigation canal in detail.
31. Discuss various methods of assessment of irrigation water.

### Non-repeated Questions

1. What is consumptive use of water? Describe any one method of determining the consumptive use of water.
2. Explain the salient features of the drip irrigation system. What are the advantages and disadvantages of the drip irrigation?
3. Describe the method of design of a lined canal.
4. Define Canal Outlet. Explain submerged pipe outlet and Kennedy's Gauge outlet in detail.
5. Write short note on spillway crest gates.
6. Explain: Frequency of irrigation.
7. State and explain the cause of failure of Structure founded on permeable soil.
8. Enlist different methods of irrigation. Explain, with neat sketch, 'Furrow method'.
9. What are the factors which decide the spacing between the furrows?
10. Differentiate between i) sprinkler and drip irrigation. ii) Weir and barrage.
11. Differentiate between the Aqueduct and siphon Aqueduct and mention the functions of cross regulator.
12. What do you understand by a fall in canal? Why it is necessary?
13. What is the consumptive Irrigation Requirement (CIR)? State the different factors affecting it.
14. Explain the term 'Diversion Head Works'. State the different points favourable for its location.
15. Explain the terms: (1) Saturation capacity (2) Field capacity (3) Wilting point
16. Explain Lacey's silt theory. Using Lacey's basic regime equations derive an expression for scour depth.

## TECHNICAL CIVIL

17. What are the different types of cross-drainage works that are necessary on a canal alignment? State briefly the conditions under which each one is used.
18. Write short note on: Factors governing the design of weirs
19. List out the various silt control devices used for sediment control in the off taking channel? Explain any two in detail.
20. Sketch the typical cross section of an irrigation channel flowing fully in filling and show on it different component parts of the channel.
21. Enlist various forces acting on gravity dam as per IS: 6512 and discuss in detail uplift and wave pressure.

**ALL THE BEST**

Technical  
CIVIL