

B.E. DEGREE EXAMINATIONS: NOV/DEC 2012

Fifth Semester

CIVIL ENGINEERING

CEE111: Irrigation Engineering

Time: Three Hours

Maximum Marks: 100

Answer All Questions:-

PART A (10 x 1 = 10 Marks)

1. Base period is _____ crop period.
a) Less than; b) Greater than; c) Equal to; d) Less or greater than
2. _____ is the unit of delta in SI system of units.
a) Metre; b) Centimetre; c) Feet; d) Inch
3. In canal irrigation, generally the flow is due to _____.
a) Gravity; b) Pressure;
c) Both gravity and pressure; d) Neither gravity nor pressure
4. _____ is an example for surface irrigation system.
a) Furrow; b) Center pivot; c) Lateral move; d) Big gun
5. In the design of weir on impervious soil, _____ need not be considered.
a) Weight of weir; b) Hydrostatic pressure force;
c) Uplift force; d) Wind force
6. In a tank surplus weir, the difference between the maximum water level and the full tank level is _____ the weir.
a) Head over; b) Length of; c) Width of; d) Height of
7. In a notch type canal drop, usually _____ notches are designed.
a) Rectangular; b) Triangular; c) Trapezoidal; d) Circular
8. Cross drainage works are needed in _____ canals.
a) Ridge; b) Watershed; c) Contour; d) Sideslope
9. _____ is used to prevent silt particles getting into a canal.
a) Silt excluder; b) Silt ejector; c) Weir; d) Barrage
10. _____ efficiency is useful in determining the water loss occurring in an irrigated field.
a) Application; b) Storage; c) Distribution; d) Conveyance

PART B (10 x 2= 20 Marks)

11. State any two reasons why irrigation is needed.
12. Write the equation relating duty, delta, and base period using SI units and explain the terms involved in it.
13. “Lift irrigation always means well irrigation” – comment on this statement.
14. What is the main difference between furrows and corrugations?
15. Why are spillways needed in a dam?
16. What is the importance of creep length?
17. Why are cross drainage works necessary?
18. What is the necessity of river training works?
19. Differentiate syphon aqueduct from syphon.
20. List any two advantages of forming water user associations.

PART C (5 x 14= 70 Marks)

21. a) List the factors affecting duty and explain how duty can be improved.

(OR)

- b) After how many days a farmer should apply water to his/her field to ensure efficient use of irrigation water, if the field capacity of the soil is 27%, permanent wilting point is 14%, bulk density of soil is 1500 Kg/m^3 , effective root zone depth is 0.76 m and daily consumptive use of water is 8 mm. If the irrigation has to start when the moisture content reaches 20%, determine the depth of water to be supplied at each irrigation event.

22. a) Describe, in detail, sprinkler method of irrigation.

(OR)

- b) Compare surface irrigation with drip irrigation.

23. a) Explain, in detail, the general ways in which a gravity dam could fail and the preventive measures to be taken to avoid such failures.

(OR)

- b) Derive an expression for the base width of a gravity dam based on (i) stress criterion; and (ii) sliding criterion.

24. a) Draw a neat sketch of a diversion headwork and describe the components involved.

(OR)

b) Describe, with neat sketches, river training works.

25. a) Write notes on (i) Need for optimization of water use; (ii) Minimising water loss in irrigation.

(OR)

b) Write notes on (i) On farm development works; (ii) Water users associations.