Reg. No. :

Question Paper Code: 41156

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2016

Fifth Semester

Civil Engineering

14UCE506 - IRRIGATION ENGINEERING

(Regulation 2014)

Duration: Three hours   Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. The irrigation is necessary in an area.

    (a) where there is a scanty rainfall
    (b) where the rainfall is non-uniform
    (c) where commercial crops require more water
    (d) all the above

2. The moisture content of the soil, after free drainage has removed most of the gravity water, is known as

    (a) field capacity   (b) saturation capacity
    (c) wilting co-efficient   (d) available moisture

3. The ratio between the area of a crop irrigated and the quantity of water required during its entire period of the growth, is known as

    (a) delta   (b) duty   (c) base period   (d) crop period

4. The consumptive use of water of a crop

    (a) is measured as the volume of water per unit area
    (b) is measured as depth of water on irrigated area
    (c) may be supplied partly by precipitation and partly by irrigation
    (d) all the above

5. A diversion head work is constructed to

   (a) raise water level at the head of the canal
   (b) regulate the intake of water into the canal
   (c) reduce fluctuations in the supply level of the river
   (d) all the above

6. A solid construction put across the river to raise its water level and divert the water into the canal, is known as

   (a) marginal bund   (b) weir   (c) barrage   (d) dam

7. The weed growth in a canal leads to

   (a) decrease in silting   (b) decrease in discharge
   (c) increase in discharge   (d) increase in velocity of flow

8. When the irrigation canal and the drain are at the same level, then the cross drainage work is achieved by providing a

   (a) aqueduct   (b) super-passage   (c) level crossing   (d) canal syphon

9. The soil becomes, practically, infertile if its p-H value is

   (a) 0   (b) 7   (c) 11   (d) 14

10. For the repairing of an old but sound concrete lining, the lining preferred is

    (a) shotcrete lining   (b) precast concrete lining
    (c) soil cement lining   (d) sodium carbonate lining

PART - B (5 x 2 = 10 Marks)

11. What is the purpose of irrigation?

12. What is meant by consumptive use of water?

13. Define diversion headwork.

14. When the channel is said to be in regime?

15. Define on-farm water management.

PART - C (5 x 16 = 80 Marks)

16. (a) Discuss the harmful effects of excess irrigation in agriculture.   (16)

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(b) Enumerate the method of soil water measurement stating the methods most commonly followed. (16)

17. (a) Describe the different components of irrigation efficiency and give the mathematical expressions. (16)

Or

(b) After how many days will you supply water to soil (clay loam) in order to ensure efficient irrigation of the given crop, if

Field capacity of soil $= 27\%$

Permanent wilting point $= 14\%$

Density of soil $= 1.5 \ g/cm^3$

Effective depth of root zone $= 75 \ cm$

Daily consumptive use of water for the given crop $= 11 mm$. (16)

18. (a) What is the difference between the weir and barrage? Write the causes of the failure of the weir and their remedies. (16)

Or

(b) What are the different forces that may act on gravity dam? Discuss with sketches and write down the expressions of the forces. (16)

19. (a) Define Lacey's regime theory. Explain its design procedure of a stable channel. Also list the defects in Lacey's theory. (16)

Or

(b) Describe with sketches about the various types of cross drainage works. (16)

20. (a) What kinds of participation are necessary for irrigation management activities? Explain in detail. (16)

Or

(b) Describe the common criteria for judging the performance of an irrigation system. (16)

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