Reg. No. : | | | | | | | | | | | | |

Question Paper Code : X20317

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2020
AND APRIL/MAY 2021
Seventh Semester
Civil Engineering
CE 6703 – WATER RESOURCES AND IRRIGATION ENGINEERING
(Regulations 2013)
(Common to PTCE 6703 – Water Resources and Irrigation Engineering for B.E. (Part-Time) – Sixth Semester – Civil Engineering – Regulations 2014)

Time : Three Hours | Maximum : 100 Marks

Answer ALL questions.

PART – A **(10×2=20 Marks)**

1. Define Design Flood.
2. Write down the names of large reservoirs in India.
3. What is Benefit Cost ratio ?
4. How do you determine sodium percentage ?
5. State the necessity of irrigation.
6. Write down the names of Kharif crops.
7. What are the advantages of lined canals ?
8. What are the drawbacks in Kennedy's Theory ?
9. What are the limitations of Drip irrigation ?
10. What are the advantages of irrigation water management ?

PART – B **(5×13=65 Marks)**

11. a) Discuss briefly about the need for Water Resources Planning and Management. Also explain in detail about Planning and development of Irrigation projects. **(13)**

(OR)

b) i) What are the advantages of Multipurpose Reservoir ? Explain. **(6)**

ii) Describe the method of estimating reservoir capacity for a specified yield. **(7)**

12. a) i) Discuss briefly about National Water Policy and its significance. **(6)**

ii) How do you classify Irrigation water based on Water Quality ? Explain. **(7)**

(OR)

b) i) What is the scope and aims of Master Plan ? Discuss. **(6)**

ii) Write short notes on Conjunctive use of surface and ground water. **(7)**

13. a) i) What are the factors affecting duty ? Explain. **(6)**

ii) Discuss briefly about the methods of improving duty. **(7)**

(OR)

b) A stream of 130 litres per second was diverted from a canal and 100 litres per seconds were delivered to the field. An area of 0.6 hectares was irrigated in 8 hours. The effective depth of root zone was 1.7 m. The runoff loss in the field was 420 cu.m. The depth of water penetration varied linearly from 1.7 m at the head end of the field to 1.1 m at the tail end. Available moisture holding capacity of the soil is 20 cm per meter depth of soil. Irrigation was started at a moisture extraction level of 50% of the available moisture. Determine the water conveyance efficiency, water application efficiency, water storage efficiency, and water distribution efficiency. **(13)**

14. a) Explain briefly the different types of cross drainage works with sketches. **(13)**

(OR)

b) i) Compare Kennedy's Theory and Lacey's Theory. **(6)**

ii) Design a channel section using Lacey's Theory for the following data : **(7)**

Discharge – 30 cumecs

Silt factor – 1.00

Side slope – ½:1

Also determine the longitudinal slope.

15. a) Explain briefly about Lift irrigation and Tank irrigation. **(13)**

(OR)

b) Explain in detail about Subsurface Irrigation method and the favourable conditions. **(13)**

PART – C **(1×15=15 Marks)**

16. a) How do you estimate consumptive use of crop ? Explain in detail. **(15)**

(OR)

b) When do you adopt Sprinkler Irrigation ? Also explain briefly about Sprinkler Irrigation. **(15)**

———————