Reg. No. :

Question Paper Code : 91318

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2019

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

(Codes/Tables/Charts to be permitted, if any may be indicated)

Answer ALL questions.

PART – A   (10×2=20 Marks)

1. Distinguish between storage reservoir and Flood Control Reservoir.

2. Define the term Probable Maximum Flood.

3. State the significance of Cost-Benefit Ratio (C/B) and also the limit of C/B ratio for irrigation projects and flood control projects.

4. What do you mean by conjunctive use of water ?

5. What is transpiration ratio ?

6. Why rotation of crop is necessary in agricultural field ?

7. State the reason why the bed level at dam site is higher than that of river basin.

8. What is Canal Outlet ? What are its types ?

9. Name some pumps which are used to lift water from confined aquifer.

10. Enumerate the purpose of irrigation scheduling.

91318   -2-

PART – B   (5×13=65 Marks)

11. a) i) State the sources of water potential in Tamil Nadu and also substantiate
why planning of water resources is necessary.   (8)

ii) How the storage capacity of a reservoir is fixed ?   (5)

(OR)

b) A watershed has an area of 200 hectares with 50% occupied by Vacant land of
0.25 run-off coefficient, 20% is covered by lawns run off co-efficient 0.3, 20%
by Roads of runoff coefficient 0.6 and by roof surfaces of 0.8 runoff coefficient.
The slope of the water shed is 0.003 and the maximum length of travel from
the remote point to mouth of culvert is 1.3 km. The following table shows the
rainfall data for 50 year return period storm. Estimate the peak flow to be
drained by a culvert for this 50 year storm.

Duration (Minutes)	15	30	45	60	80
Rainfall in mm	40	60	75	100	120

12. a) Discuss in detail the salient features and the principles of National Water
Policy.

(OR)

b) What is mater plan ? Explain the aim and eight work plans of master plan.

13. a) i) What is duty of water ? Discuss the factors affecting the duty and
methods to improve duty of water.   (7)

ii) Explain the method used to estimate the consumptive use of water.   (6)

(OR)

b) i) What do you mean by irrigation efficiency ? Discuss the different types
of irrigation efficiency.   (9)

ii) Write the merits and demerits of irrigation.   (4)

14. a) Analyse the possible ways by which the gravity dam fails and also suggest
some precautions to prevent these failures.

(OR)

b) i) Suggest some suitable type of cross drainage works to be provided when
the bed level of canal lies below the bed level of channel.   (5)

ii) Explain the different types of Impounding structures.   (8)

SSLC, HSE, DIPLOMA, B.E/B.TECH, M.E/M.TECH, MBA, MCA
Notes   *Available @*
Syllabus
Question Papers   www.AllAbtEngg.com
Results and Many more…

15. a) i) Explain the merits and demerits of surface and subsurface irrigation.   (5)

   ii) Explain the different types of irrigation methods.   (8)

(OR)

   b) What is Participatory Irrigation Management ? Explain the objectives and benefits of participatory Irrigation Management with a case study.

PART – C   (1×15=15 Marks)

16. a) A stream of 130 litres per second was diverted from a canal and 100 litres per second were delivered to the field. An area of 1.6 hectares was irrigated in 8 hours. The effective depth of root zone was 1.7m. The runoff loss in the field was 420 cm. The depth of water penetration varied linearly from 1.7 m at the head end of the field to 1.1m at the tail end. Available moisture holding capacity of the soil is 20cm/m depth of soil. It is required to determine the water conveyance efficiency, water application efficiency, water storage efficiency and water distribution efficiency. Irrigation was started at a moisture extraction level of 50% of the available moisture.

(OR)

   b) i) Compare and contrast Kennedy's theory with Lacey's theory.   (5)

   ii) Explain the procedure for the design of levees and flood walls.   (10)

———————————