320712(20)

B. E. (Seventh Semester) Examination, April-May/Nov.-Dec. 2020

(Old Scheme)

(Civil Engg. Branch)

WATER RESOURCES ENGINEERING-I

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

*Note : Attempt all questions. Part (a) from each question is compulsory. Attempt any **two** from (b), (c) and (d).*

Unit-I

1. (a) Define irrigation.   2

    (b) Describe the advantages of irrigation.   7

(c) Describe the different methods of irrigatin.   7

(d) The base period, duty and area of various crops under a canal system are given in the table below. Find the reservoir capacity if the canal losses are 20% and reservoir losses is 10%.   7

Crop	Base Period (days)	Duty at the field (hec./cumec)	Area under the crop (hec.)
Wheat	120	1800	4800
Sugarcane	360	800	5600
Cotton	200	1400	2400
Rice	120	900	3200
Vegetable	120	700	1400

Unit-II

2. (a) Define water-course.   2

(b) Describe different type of canal according to alignment.   7

(c) Design an irrigation channel to carry a discharge of 15 m^3/s. Lacey's silt factor is 1.0 and channel side slope is ½ : 1.   7

(d) Design an irrigation canal to carry a discharge of 14 cumecs. Assume $n = 0.0225$, m = 1, B/D = 5.7.   7

Unit-III

3. (a) Define water logging.   2

(b) Describe the causes of water logging.   7

(c) Describe the different types of lining.   7

(d) Design a trapezoidal shaped concrete lined channel to carry a discharge of 105 m^3/s at a slope of 1/4000. The side slopes of the channel are 1.5 : 1. The value of n = 0.016 and b/d = 8.   7

Unit-IV

4. (a) Define river training works.   2

(b) Describe the classification of river training works.   7

(c) Explain the following :   7

Meandering, Guide Bank, Groynes, Leavees

(d) Describe the different types of Groynes.   7

Unit-V

5. (a) Define reservoir.   2

(b) Describe the different types of reservoirs.   7

(c) What are the different investigations required for reservoir planning?   7

(d) Describe the graphical method of flood routing.   7