Reg. No:

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech IV Year II Semester Regular Examinations September 2020
WATER RESOURCES SYSTEMS PLANNING & MANAGEMENT
(Civil Engineering)

Time: 3 hours   Max. Marks: 60

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1	**a**	Define system and discuss various types of systems.	**6M**
	b	What are the planning and management aspects of water resources system?	**6M**

OR

2	**a**	Explain classification based on the permissible values of the decision variables.	**6M**
	b	Explain classification based on separability of the functions.	**6M**

UNIT-II

3	**a**	Write a short note on simplex method.	**6M**
	b	What are the applications of linear programming in water resources?	**6M**

OR

4	**a**	Write a short note on revised simplex method.	**6M**
	b	Explain the relation between primal and dual methods.	**6M**

UNIT-III

5	**a**	What are principles of optimality?	**4M**
	b	Explain the backward recursive dynamic programming.	**8M**

OR

6	**a**	What are the convex and concave functions?	**6M**
	b	Solve the convex function, $f(x)=2x^2$ and concave function, $f(x)= -2x^2$	**6M**

UNIT-IV

7	**a**	What are the components of simulation model?	**6M**
	b	The inflow, Q follows an exponential distribution with parameter, T=0.6 Let the first uniformly distributed random number be 0.46. Determine the corresponding inflow.	**6M**

OR

8	**a**	The nominal rate of interest is 10%, determine the effective rate of interest when money is compounded. a) Yearly b) Half yearly c) Quarterly & d) Daily	**8M**
	b	What is discount rate and depreciation?	**4M**

UNIT-V

9	**a**	How to manage the water resources system?	**6M**
	b	What are the steps involved in water resources management?	**6M**

OR

10	**a**	Discuss the various advantages of conjunctive use of surface and sub-surface water resources.	**6M**
	b	Explain the optimal cropping pattern.	**6M**

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