PAPER ID-410106

Subject Code: RCE702

Roll No: | | | | | | | | | | | | | |

B.TECH
(SEM -VII) THEORY EXAMINATION 2021-22
WATER RESOURCES

Time: 3 Hours ***Total Marks: 70***

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 7 = 14

a.	Explain various types of Precipitation.
b.	Define intensity of irrigation.
c.	Write down the relation between Duty and Delta.
d.	Define different crop seasons in India.
e.	What are the objectives of Diversion Headwork?
f.	Define meandering in rivers.
g.	Explain different functions of spillway.

SECTION B

2. Attempt any *three* of the following: 7x3=21

a.	Describe the concept of hydrologic cycle with the help of a neat sketch. What are the different components of the hydrologic cycle? Write down water budget equation for surface flow.
b.	Write the advantages & disadvantages of irrigation? Explain the limitation of Sprinkler Irrigation method and Furrow Irrigation method.
c.	Estimate the designing of an irrigation channel to carry 60 cumecs of discharge. The channel is to be laid at a slope of 1 in 3600. The critical velocity ratio for the soil is 1.12. Use Kutter's rugosity coefficient as 0.022.
d.	Explain different types of Canal Falls with design considerations.
e.	Draw a neat sketch showing different forces on Gravity Dam. Discuss different modes of failure of gravity dams in detail.

SECTION C

3. Attempt any *one* part of the following: 7x1=7

a.	Write down the water budget equation for a catchment. Define which type of precipitation generally occurs in India.
b.	Define following terms: i. Depth area duration curve ii. Probable Maximum Precipitation iii. Furrow Irrigation Method iv. Crop Rotation

4. Attempt any *one* part of the following: 7x1=7

a.	Design an irrigation channel to carry a discharge of 30 cumec by Kennedy's theory. Take B/D ratio as 8.0, N= 0.0225 and m = 1.0.
b.	Using Lacey's theory, design a trapezoidal irrigation channel (side slope, 1H: 2V) carrying discharge of 40 m^3/sec. Take silt factor as 1.0.

5. Attempt any *one* part of the following: 7x1=7

a.	Outline the significance of Khosla's theory for seepage flow. Also explain the concept of flow net and critical exit gradient.
b.	What is the concept of river training? What do you mean by river training for discharge and river training for depth and river training for sediment? List the various types of river training works and explain any one of them with suitable sketches.

6. Attempt any *one* part of the following: 7x1=7

a.	What is cross drainage works? What are the various types of cross drainage works?
b.	What are the steps for site selection for Dams and Reservoir? Explain Reservoir Losses.

7. Attempt any *one* part of the following: 7x1=7

a.	Classify Power Plants on the basis of their suitability. Explain different Power House layout with neat sketch.
b.	Explain various types of spillway? Also, Explain how the spillway is used as an energy dissipater.