Printed Pages: 2 **Sub Code: RCE-702**

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B. TECH
(SEM VII) THEORY EXAMINATION 2022-23
WATER RESOURCES

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

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

SECTION A

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

a. What is hydrologic cycle? Write different components of hydrologic cycle.
b. Define Furrow irrigation system.
c. What are advantages of lining of canal?
d. Explain Bligh's theory with diagram.
e. What are various zones of reservoir. Explain with diagram?
f. How hydraulic jump can be used to dissipate energy.
g. Draw an elementary profile of gravity dam.

SECTION B

2. Attempt any *three* of the following: 7*3 = 21

a. Describe in brief advantages of Drip Irrigation system.
b. Write the difference between two silt theories. Outline the defects in Lacey's theory.
c. Write the difference between weir and barrages. Explain the functioning of Canal head regulator.
d. What is cross drainage work? Explain siphon and super-passage with a neat sketch.
e. Write the classification of power plants based on purpose.

SECTION C

3. Attempt any *one* part of the following: 7*1 = 7

a. A loam soil has field capacity of 22% and wilting coefficient. of 10%. The dry unit weight of soil is 15 KN/m^3. Irrigation water is applied when moisture content is fallen to 14%. If water application efficiency is 75%, Calculate water depth required to be applied in the field.

b. Write down the necessity of irrigation with its advantages and disadvantages. Explain the different methods of irrigation used along with their merits and demerits.

4. Attempt any *one* part of the following: 7*1 = 7

a. Explain the design procedure of irrigation canal along with appropriate diagrams.
b. Differentiate between perennial and inundation canal. State various considerations kept in mind while aligning a canal.

5. Attempt any *one* part of the following: 7*1 = 7

a. What do you mean by canal outlets? Write its requirements and classify on the principle of available discharge and silt load.

b. What is canal lining? Write about various types of canal lining along with its advantages and disadvantages of canal lining.

6. Attempt any *one* part of the following: 7*1 = 7

a. How to calculate the capacity of reservoir. Sketch the flow mass curve in detail.

b. Show various reservoir losses which happens in the impounding reservoir.

7. Attempt any *one* part of the following: 7*1 = 7

a. Explain various types of spillways? Also, explain how the spillway is used as an energy dissipater.

b. What are the different modes of failure of earthen dams? Design the practical profile a gravity dam made of a stone masonry given the following data:
R.L of base of dam = 200m
R.L of HFL of reservoir = 230m
Specific gravity of masonry = 2.4
Safe compressive stress in masonry = 1200 KN/m^2