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**BTECH**  
**(SEM V) THEORY EXAMINATION 2023-24**  
**ENGINEERING HYDROLOGY**

TIME: 3 HRS

M.MARKS: 100

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

**SECTION A**

1. Attempt all questions in brief.

2 x 10 = 20

Qno.	Question
a.	What is rain gauge density ?
b.	Write a short note on direct runoff hydrograph.
c.	Write down the limitations of rational formula.
d.	Define specific capacity and specific yield of a well.
e.	Explain the term artificial recharge and natural recharge.
f.	Write a short notes on Well maintenance.
g.	What do you mean by hydrologic reservoir routing?
h.	Define runoff coefficient.
i.	Explain the importance of Engineering Hydrology.
j.	Explain the term artificial recharge and natural recharge.

**SECTION B**

2. Attempt any three of the following:

10x3=30

a.	Differentiate between confined aquifer and unconfined aquifer.
b.	What is meant by probable maximum precipitation (PMP) over a basin? Explain how PMP is estimated.
c.	What do you mean by flood control? Explain various structural methods for flood control.
d.	Explain about various methods for determination of average precipitation.
e.	At a particular time, the storage in a river reach is $60 \times 10^3 \text{ m}^3$ . At that time, the inflow into the reach is $10 \text{ m}^3/\text{s}$ and the outflow $16 \text{ m}^3/\text{s}$ . after two hours, the inflow and the outflow are $18 \text{ m}^3/\text{s}$ and $20 \text{ m}^3/\text{s}$ respectively. Determine the change in storage during two hours period and the storage volume after two hours.

**SECTION C**

3. Attempt any one part of the following:

10x1=10

a.	Explain the hydrological cycle in detail with the help of a neat sketch.
b.	What is Evaporation also explain its measurement and estimation?

4. Attempt any one part of the following:

10x1=10

a.	What is the purpose of water budget equation in hydrology? Also give the expression for the water budget of catchment for a time interval t and write in brief about all the terms in the equation.
b.	Derive equation for discharge from an unconfined aquifer using Dupuit's theory for steady and radial flow with a neat sketch.



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**5. Attempt any one part of the following: 10x1=10**

a.	Define unit hydrograph, also explain its assumptions and uses.
b.	Define flood routing. Discuss broad categories of flood routing. What are the basic equations used for flood routing?

**6. Attempt any one part of the following: 10x1=10**

a.	What do you mean by well development? Explain any two methods used for well development.
b.	What do you mean by flood control? Explain various structural methods for flood control.

**7. Attempt any one part of the following: 10x1=10**

a.	What is a tube well? Explain its various types by using neat sketches.
b.	Explain in detail about s-curve hydrograph.

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