

**BALLARI INSTITUTE OF TECHNOLOGY & MANAGEMENT**

(Autonomous Institute under Visvesvaraya Technological University, Belagavi)

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Course Code 

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**Fifth Semester B.E. Degree Examinations, April/May 2024**  
**HYDROLOGY AND IRRIGATION ENGINEERING****Duration: 3 hrs****Max. Marks: 100****Note:** 1. Answer any FIVE full questions choosing ONE full Question from each Module.  
2. Missing data, if any, may be suitably assumed.

<u>Q. No</u>	<u>Question</u>	<u>Marks</u>	<u>(RBTL:CO:PI)</u>
<b><u>Module-1</u></b>			
1.	a. With engineering representation, explain hydrological cycle along with process involved in it.	12	(2 : 1 : 1.2.1)
	b. List and explain different types of precipitation and forms of precipitation.	08	(2 : 1 : 1.2.1)
<b>(OR)</b>			
2.	a. The average annual rainfall of 6 rain-gauge stations in a basin are 89, 68, 54, 45, 41 and 55 cm. If the allowable error in the estimation average rainfall is 10 %. How many additional rain gauges should be installed in the basin?	12	(2 : 1 : 1.3.1)
	b. Write a note on (i) Moving Average Curve (ii) Mass Curve (iii) Rainfall Hyetograph.	08	(2 : 1 : 1.2.1)
<b><u>Module-2</u></b>			
3.	a. Define runoff. Explain factors affecting runoff.	10	(2 : 2 : 1.2.1)
	b. Explain procedure to derive unit hydrograph from simple hydrograph.	10	(2 : 2 : 1.2.1)
<b>(OR)</b>			
4.	a. Define hydrograph. Explain different components of hydrograph.	10	(2 : 2 : 1.2.1)
	b. Define unit hydrograph. Enlist assumptions and limitations of unit hydrograph.	10	(2 : 2 : 1.2.1)
<b><u>Module-3</u></b>			
5.	a. Explain different methods of irrigation.	12	(2:3 : 1.2.1)
	b. With a neat sketch explain drip irrigation and its applications.	08	(2:3 : 1.2.1)
<b>(OR)</b>			
6.	a. Define the following: (i) Crop Period (ii) Base Period (iii) Duty (iv) Delta Obtain relation between duty, delta, and base period.	12	(2:3 : 1.2.1)
	b. Explain crops and crop seasons in India.	08	(2:3 : 1.2.1)
<b><u>Module-4</u></b>			
7.	a. With neat sketch explain different storage zones of reservoir.	10	(2 : 4 : 1.2.1)

- b.** Define and briefly explain **10** (2 :4 : 1.2.1)  
(i) Gross Command Area (ii) Cultural Command Area (iii) Time factor  
(iv) Intensity of irrigation (v) Crop factor (vi) Crop rotation.

**(OR)**

- 8. a.** List and briefly explain classification of canals. **10** (2 :4 : 1.2.1)  
**b.** Explain design steps of canal by Lacey's method. **10** (2 :4 : 1.2.1)

**Module-5**

- 9. a.** Write a note on causes of floods. **06** (2 :5: 1.2.1)  
**b.** Define drought. Explain causes of drought. **06** (2 :5: 1.2.1)  
**c.** With neat sketch explain flood controlling structures: Levees and Flood walls. **08** (2 :5: 1.2.1)

**(OR)**

- 10 a.** Explain water harvesting using small dams. **06** (2 :5: 1.2.1)  
**b.** Write a note on restoration and rejuvenation of water bodies. **06** (2 :5: 1.2.1)  
**c.** Explain measures for water conservation and augmentation. **08** (2 :5: 1.2.1)

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