

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-V (NEW) EXAMINATION – WINTER 2022****Subject Code:3151311****Date:04-01-2023****Subject Name:Groundwater Hydrology and Contamination****Time:10:30 AM TO 01:00 PM****Total Marks:70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

- Q.1** (a) Define Ground water. **03**  
 (b) Differentiate between Groundwater and Surface water. **04**  
 (c) Describe Darcy's law and its validity. **07**
- Q.2** (a) Define Porosity. **03**  
 (b) Differentiate between Confined and Unconfined aquifer. **04**  
 (c) Discuss hydrologic properties of water bearing strata. **07**
- OR**
- (c) Explain with neat sketch groundwater in Hydrologic cycle. **07**
- Q.3** (a) What do you mean by Infiltration? **03**  
 (b) Explain with neat sketch vertical distribution Groundwater. **04**  
 (c) Derive equation for steady radial flow in unconfined aquifer. **07**
- OR**
- Q.3** (a) What do you mean by Yield of well? **03**  
 (b) Write down assumptions made in dupuit's theory **04**  
 (c) Write down the Indian standards for Groundwater quality for various purposes. **07**
- Q.4** (a) What is Groundwater Contamination? **03**  
 (b) Describe cone of depression. **04**  
 (c) Describe various sources responsible for Groundwater pollution. **07**
- OR**
- Q.4** (a) What is Groundwater Conservation? **03**  
 (b) Write a note on seepage from Surface water. **04**  
 (c) Enlist and explain preventive measures for Groundwater pollution. **07**
- Q.5** (a) What do you mean by Seepage? **03**  
 (b) Explain interference among wells. **04**  
 (c) Explain various artificial recharge methods for Groundwater **07**
- OR**
- Q.5** (a) What do you mean by Artificial recharge? **03**  
 (b) Describe sampling and monitoring methods for Groundwater. **04**  
 (c) Enlist and explain site selection criteria for artificial recharge. **07**

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