

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-V EXAMINATION – SUMMER 2025

Subject Code:3151311

Date:13-05-2025

Subject Name:Groundwater Hydrology and Contamination

Time:02:30 PM TO 05:00 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) What do you mean by Water Cycle? **03**
(b) Tabulate key differences between Surface water and Groundwater. **04**
(c) Illustrate and explain groundwater system in Hydrologic cycle with neat sketch. **07**
- Q.2** (a) What do you mean by Percolation? **03**
(b) Explain with sketch the term Aquifer and give its classification. **04**
(c) Compare in tabular form Aquifer, Aquiclude, Aquifuge & Aquitard with distinguishing parameters. **07**
- OR**
- (c) Explain with sketch the term Perched Aquifer. **07**
- Q.3** (a) What do you mean by Runoff? **03**
(b) Write down the assumptions made in Dupuit's theory. **04**
(c) Discuss vertical distribution of groundwater with neat sketch. **07**
- OR**
- Q.3** (a) What do you mean by Void ratio? **03**
(b) Explain cone of depression. **04**
(c) Explain the Darcy's law and its application to simple flow system. What is its limitation? Discuss its validity. **07**
- Q.4** (a) What do you mean by Degree of saturation? **03**
(b) How presence of Arsenic and Fluoride affects Ground water quality. **04**
(c) Write a note on salinity ingress and its control. **07**
- OR**
- Q.4** (a) What is Specific yield? **03**
(b) Write a note on physical and chemical analysis of Ground water to assess its quality. **04**
(c) Explain in detail different sources responsible for ground water pollution with causes. **07**
- Q.5** (a) What do you mean by Infiltration? **03**
(b) Explain sampling and monitoring methods for Ground water. **04**
(c) Explain different artificial recharge methods of Ground water. **07**
- OR**
- Q.5** (a) Define Evapotranspiration. **03**
(b) Discuss in detail Ground water budget. **04**
(c) Enlist and explain ground water pollution remedial and preventive measures. **07**
