U.S.N.										

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

February / March 2023 Semester End Main Examinations

Programme: B.E.   Semester: VII
Branch: Civil Engineering   Duration: 3 hrs.
Course Code: 21CV7PEGWH   Max Marks: 100
Course: Ground Water Hydrology   Date: 28.02.2023

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

UNIT - I

1 a) Illustrate the Groundwater utilization and background.   **08**

   b) Classify the different types of aquifers on a porosity basis.   **12**

OR

2 a) Categorize the occurrence of groundwater in different types of soils and rocks.   **12**

   b) Design the bottom diameter of a dug well in the fine sand region to obtain 10   **08**
       liters/sec of yield under a depression head of 2.5 m. The value of K_s = Specific
       capacity per unit area may be taken as 0.6 per hour.

UNIT - II

3 a) Inspect the steady and radial flow in a confined and unconfined aquifer.   **12**

   b) A 30 cm diameter well completely penetrates a confined aquifer of   **08**
       permeability 45 m/day. The length of the strainer is 20 m. Under steady state
       of pumping, the drawdown at the well was 3 m and the radius of influence was
       300 m. Calculate the discharge.

OR

4 a) Examine the hydraulics of recharge wells.   **10**

   b) A tubewell taps an artesian aquifer. Calculate the yield in litres per hour for a   **10**
       drawdown of 3 m when the well diameter is 20 cm and the aquifer thickness is
       30 m. Assume a permeability coefficient of 35 m per day. Find the percentage
       increase in yield if the well diameter is doubled while the other conditions stay
       the same. In both scenarios, assume a radius of influence of 300 m.

UNIT - III

5 a) Describe the different artificial recharge methods. **08**

   b) Analyze the sources of groundwater pollution and remediation. **12**

UNIT - IV

6 a) Inspect the Ghyben-Herzberg relation between fresh and saline waters**.** **10**

   b) Analyze the saltwater intrusion assessment into the groundwater table. **10**

UNIT - V

7 a) Examine the seismic and electrical resistivity method for groundwater exploration. **12**

   b) Examine the sonic and fluid logging method for groundwater exploration. **08**

******