


Name:			
Enrolment No:			
UPES End Semester Examination, May 2024			
Course: Hydrogeology Program: B. Sc (Hons) Geology Course Code: PEGS 2041		Semester: IV Time : 03 hrs. Max. Marks: 100	
Instructions: Answer all questions. However, there is internal choice in Q8, Q9, Q10 and Q11			
SECTION A (5Qx4M=20Marks)			
S. No.		Marks	CO
Q 1	List out the important groundwater quality parameters for drinking	4	CO1
Q 2	Calculate the specific yield of aquifer whose porosity is 30% and specific retention of 20%	4	CO1
Q 3	Bulk resistivity of aquifer is given as 30 ohm-m and its containing fluid is 10 ohm-m. Find the formation factor of aquifer	4	CO2
Q 4	Explain the use of SP log in groundwater	4	CO3
Q 5	Find the relationship between hydraulic head and drawdown	4	CO2
SECTION B (4Qx10M= 40 Marks)			
Q 6	Explain the various laws being enacted in India for groundwater utilization for drinking and commercial purpose	10	CO2
Q 7	Explain the relationship between saline water and freshwater interaction in coastal areas	10	CO3
Q 8	Explain the geological method of groundwater prospecting. OR Explain the geophysical method of groundwater exploration.	10	CO1
Q 9	Describe the well logging methods in evaluating porosity and lithology of aquifer. OR Explain the lab based method for determining hydraulic conductivity of sandy and sandy clay formation using constant head and falling head method	10	CO4
SECTION-C (2Qx20M=40 Marks)			
Q 10	Evaluate various numerical modelling techniques in determining the rate of groundwater flow, flow direction and hydraulic head.	20	CO3

	<p style="text-align: center;">OR</p> <p>Develop a suitable model for groundwater quality assessment of a study area for domestic use</p>		
Q 11	<p>Explain the basic assumptions of groundwater flow. Develop a relationship of steady state groundwater flow to well in unconfined aquifer with aquifer parameters</p> <p style="text-align: center;">OR</p> <p>Develop an integrated geological, geophysical and well logging model for ground water exploration.</p>	20	CO4