


Name:			
Enrolment No:			
UNIVERSITY OF PETROLEUM AND ENERGY STUDIES End Semester Examination, May 2022			
Course:	Hydrogeology	Semester :	IV
Program:	B.Sc. (Geology-H)	Time :	03 hrs.
Course Code:	PEGS 2031	Max. Marks:	100
Instructions: All questions are compulsory.			
SECTION A (5Qx4M=20Marks)			
S. No.		Marks	CO
Q 1	Describe difference between Evaporation and Evapotranspiration	4	CO1
Q 2	Explain Run off and factors affecting run off	4	CO1
Q 3	Describe difference between water table and potentiometric surface	4	CO2
Q 4	Describe with schematic diagram the Vertical distribution of subsurface water	4	CO2
Q 5	Discuss Water balance equation	4	CO3
SECTION B (4Qx10M= 40 Marks)			
Q 6	a) Define Hydraulic Conductivity b) A field sample of an unconfined aquifer is packed in a test cylinder. The length and the diameter of the cylinder are 50 cm and 6 cm respectively. The field sample is tested for a period of 3 minutes under a constant head difference of 16.3 cm. As a result, 45.2 cm ³ of water is collected at the outlet. Determine the hydraulic conductivity of the aquifer sample	(3+7) 10	CO1
Q 7	Describe different methods of groundwater exploration	10	CO2
Q 8	Explain well hydraulics. How steady flow occurs to a well in confined and unconfined aquifers.	10	CO3
Q 9	Explain water quality. Describe different parameters for determination of water quality. OR Describe different methods of interpreting groundwater quality data using standard graphical plots	10	CO4
SECTION-C (2Qx20M=40 Marks)			
Q 10	a) Explain the steady unidirectional flow in homogenous silty sand confined aquifer b) A well fully penetrates a 25-m thick confined aquifer. After a long period of pumping at a constant rate of 0.05m ³ /s, the drawdowns at distances of 50m and 150m from the well were observed to be 3 and 1.2m, respectively. Determine the	(10 + 10) 20	CO3

	<p>hydraulic conductivity and transmissivity. What type of unconsolidated deposit you expect this to be?</p> <p style="text-align: center;">OR</p> <p>a) Explain how unsteady flow occurs to a well in a confined and unconfined aquifers</p> <p>b) Evaluate the factors affecting the groundwater level fluctuations</p>		
Q 11	<p>a) Describe in detail the issues and approach related to groundwater resources development and management.</p> <p>b) Evaluate the strategy of Rainwater Harvesting and Artificial Recharge in India</p>	<p>(10 + 10) 20</p>	CO4