Name: **Enrolment No:**	UPES UNIVERSITY OF TOMORROW

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, May 2022

Programme Name: M.Sc (Petroleum Geosciences) **Semester : II**
Course Name : Hydrogeology **Time : 03:00 hrs**
Course Code : PEGS 7026 **Max. Marks: 100**
Nos. of page(s) : 1
Instructions: Draw sketches if required

SECTION A
(5Qx4M=20Marks)
(Attempt all questions)

S. No.		Marks	CO
Q 1	Define perched aquifer.	**4**	**CO2**
Q2	Differentiate between water table and potentiometric surface.	**4**	**CO1**
Q3	Describe different combinations of homogeneity and anisotropy in terms of hydraulic conductivity values.	**4**	**CO2**
Q4	Define groundwater mining.	**4**	**CO3**
Q5	Describe water balance equation in water shed scale.	**4**	**CO1**

SECTION B
(4Qx10M= 40 Marks)
(Attempt question 6, 7, 8 and any one of the question 9)

Q 6	Describe different methods of groundwater exploration.	**10**	**CO2**
Q7	Illustrate the importance of fixing datum in groundwater survey.	**10**	**CO3**
Q8	Describe the working principal of falling head permeameter.	**10**	**CO2**
Q9	Derive the equation of calculating specific discharge. Or Derive the governing expression of constant head permeameter to calculate hydraulic conductivity.	**10**	**CO3**

SECTION-C
(2Qx20M=40 Marks)
(Attempt question 10 and any one of the question 11)

Q 10	Considering a three layer horizontal earth model different hydraulic conductivity values are found to be 2.3meter/hour, 1.2 meter/hour and 0.6meter/hour. Calculate layer parallel and layer perpendicular equivalent hydraulic conductivity. Consider thickness of the layers are	**20**	**CO2**

	0.85meter, 1.6meter and 2.8meter respectively.		
Q11	Define flow net and derive the expression of calculating total flow in the cross section of an aquifer. Or Define cone of depression illustrating the parameters that govern the extent of cone of depression.	**20**	**CO4**