Name: **Enrolment No:**	

UPES

End Semester Examination, May 2023

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
Instruction: Draw sketches if necessary

SECTION-A (5 x 4=20)
Attempt all questions

Sl. No.		Marks	CO
Q1	Distinguish between hydraulic conductivity and permeability.	4	**CO2**
Q2	Define water shed.	4	**CO1**
Q3	Describe different models of rain fall.	4	**CO1**
Q4	Differentiate between steady and transient flow.	4	**CO3**
Q5	Illustrate what type of electrical resistivity response is expected for fresh water and brackish water.	4	**CO3**
	SECTION-B (4 x 10=40) **Attempt all questions**		
Q6	Describe the working principle of constant head permeameter.	10	**CO2**
Q7	Explain different combinations of homogeneity-heterogeneity and isotropy-anisotropy in terms of hydraulic conductivity.	10	**CO2**
Q8	Illustrate the shape of the water table for an unconfined aquifer for steady unidirectional flow.	10	**CO3**
Q9	Describe storativity for confined and unconfined aquifer. OR Describe specific yield and specific retention for water saturated soil.	10	**CO3**
	SECTION-C (20 x 2=40) **Attempt all questions**		
Q10	In a pump test of a confined aquifer pumping rate is 0.5cubic-meter/sec. Drawdown is measured at two observation wells of linear distance of 100m (Well A) and 150m (Well B) from the pumping well. With constant pumping rate depth to water level for Well A is 15m and for Well B 10m. a. Make the proper sketch of this well test operation. b. Considering aquifer thickness of 12m determine the hydraulic conductivity of the aquifer.	20	**CO4**
Q11	Derive the equation of total cross-sectional discharge for a homogeneous isotropic aquifer with the help of flow net. OR Describe all the parameters that govern the extent of cone of depression of a pumping well.	20	**CO4**