

Name:

Enrolment No:



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2023

Programme Name: B.Sc Geology (Hons)

Course Name : Hydrogeology

Course Code : PEGS 2031

Nos. of page(s) : 1

Instruction: Draw sketches if necessary

Semester : IV

Time : 03:00 hrs

Max. Marks: 100

SECTION-A (5 x 4=20)

Attempt all questions

Sl. No.	(Draw sketches if necessary)	Marks	CO
Q1	Define confined and unconfined aquifer.	4	CO2
Q2	Distinguish between fresh water and brackish water.	4	CO1
Q3	Differentiate between specific storage and storativity.	4	CO4
Q4	Explain water balance equation in water shed scale.	4	CO2
Q5	Define specific yield for an unconfined aquifer.	4	CO3

SECTION-B (4 x 10=40)

Attempt all questions

(Draw sketches if necessary)

Q6	Illustrate the importance of fixing datum in groundwater survey.	10	CO2
Q7	Describe the working principal of falling head permeameter.	10	CO2
Q8	Describe different methods of groundwater exploration.	10	CO1
Q9	Differentiate between steady state and transient flow in aquifer. OR Discuss all the parameters that govern the extent of cone of depression for a pumping well.	10	CO3

SECTION-C (20 x 2=40)

Attempt all questions

(Draw sketches if necessary)

Q10	Derive groundwater flow equation in transient state for natural porous media.	20	CO4
Q11	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 0.85meter, 1.6meter and 2.8meter respectively. OR Describe and derive different parameters that can be obtained from a groundwater well pumping test.	20	CO4