

Name:	
Enrolment No:	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, Dec 2021

Programme: M. TECH Petroleum Engineering

Course: Formation Evaluation and Well Logging

Course Code: PEAU 7005

Nos. of page(s) : Two only

Instructions: Answer should be precise & to the point.

Semester: I

Time: 3 hrs.

Max. Marks: 100

SECTION A

S. No.		Marks	CO
Q 1	Write short note on Dip meter tool.	4	CO3
Q2	Use volumetric analysis to estimate OOIP given the following data: -Bulk reservoir volume 9240 acre-ft -Oil saturation 0.70 -Porosity 0.228 -Initial pressure P_i 3935psia -Oil FVF at P_i 1.3473 RB/STB Water FVF is B_w 1.0RB/STB	4	CO1
Q3	Which logs are applicable for cased hole logging and why?	4	CO3
Q4	List the logs used in open hole, along with their applications.	4	CO3
Q5	Differentiate between Lateral and Induction Resistivity logs.	4	CO3

SECTION B

Q 6	A) Fluid density for a volume with oil, gas and water phases can be estimated using ρ_f . Estimate fluid density when gas density is 0.00086 g/cc, Oil density is 0.71 g/cc and water density is 1.03 g/cc, and water saturation is 30% and oil saturation is 50%. Suppose bulk density ρ_b is 2.20 g/cc from a density log, and density of rock matrix ρ_{ma} is 2.62g/cc. B) Use the fluid density ρ_f from Part A to estimate porosity.	10	CO2
Q 7	Explain the applications of Cased-Hole logging.	10	CO3
Q 8	Explain the wireline fluid sampling methods.	10	CO1
Q9	A) Define Formation Resistivity Factor. B) Write Archie's equation with all abbreviations.	10	CO2

	C) Fill in the following table to calculate formation resistivity factor F for a resistivity log.				
		Sand			Carbonate
	a	0.81			1
	M	2			2
	Porostiy	0.1			0.1
F					

SECTION-C

Q10	<p>A) Explain the principle of lateral log. Also explain, how the spacing of electrodes in the sonde affect the resolution of the tool?</p> <p>B) Explain Micro resistivity tools.</p>	20	CO3
Q11	<p>A) Describe Cross-Plots along with its significance.</p> <p>B) Describe Pickett Cross-Plots.</p> <p>C) Explain any two lithology logs.</p>	20	CO3