

Name:

Enrolment No:



End Semester Examination, May 2023

Course: PETROLEUM EXPLORATION

Semester: II

Program: MSc Petroleum Geoscience

Time : 03 hrs.

Course Code: PEGS 7028

Max. Marks: 100

Instructions: Draw correct diagram whenever requires. Attached the log image with answer sheet.

SECTION A (5X4=20Marks)

S. No.		Marks	CO
Q 1	Explain about Archie's principle.	4M	CO1
Q 2	Discuss the special core analysis techniques for petrophysical properties evaluation	4M	CO2
Q 3	Mention the important parameters and their threshold values for source rock generation.	4M	CO3
Q 4	List the conventional well logs and their applications.	4M	CO3
Q 5	Mention the tools and techniques require for reservoir characterization.	4M	CO2

SECTION B

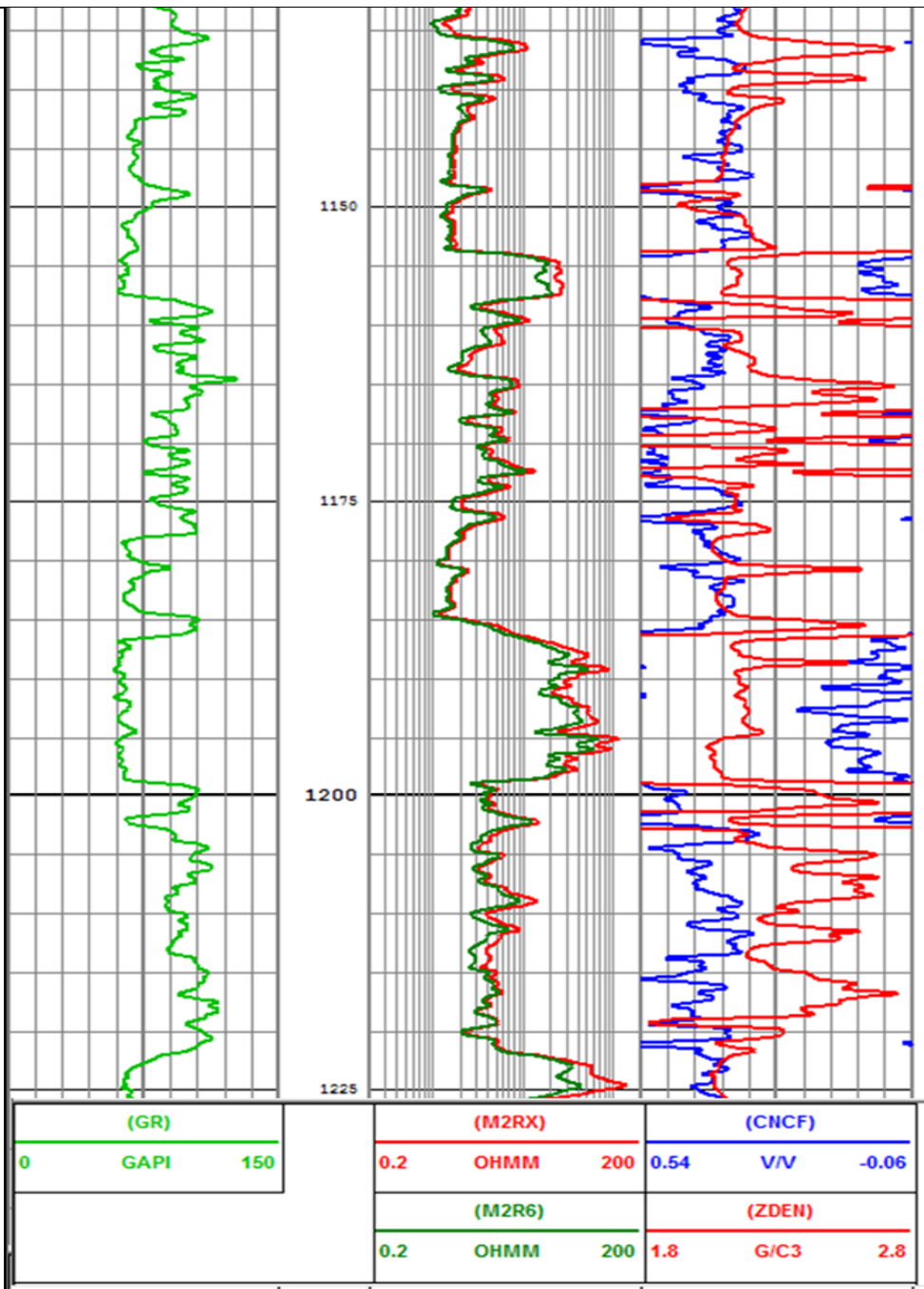
(4Qx10M= 40 Marks)

Q 6	Elaborate the following techniques of petroleum exploration, (a) Seismic acquisition (b) Surface Geochemical Prospecting	10M	CO2
Q 7	(a) Distinguished between hydrocarbon resource and reserves. (b) Explain the difference between porosity and permeability of petroleum reservoir.	10M	CO3
Q 8	Explain about PETROMOD SOFTWARE and its application. Discuss the process flow of PETROMOD Software.	10M	CO4
Q 9	Give the reasons why petroleum cannot be explored from all the sedimentary basins	10M	CO4

SECTION-C

(2Qx20M=40 Marks)

Q 10	Refer the log image and answer the following questions:	10X 2= 20 M	CO5
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- (a) Identify lithology and mark in the log section
- (b) Interpret the hydrocarbon bearing zone and assess the reservoir quality based on shaliness.

Q 11

- (a) Draw a process work flow diagram illustrating the geological and geochemical techniques of petroleum exploration. Elaborate each step.

OR

- (a) Evaluate the source rock potential, kerogen type and maturity of a shale rock with 4 wt % of TOC releases 0.25mgHC/g Rock free gases, 0.3mgHC/g Rock HC gases and 1.45 mg CO₂/g Rock CO₂ gases at 447°C, 467°C and 560°C temperature respectively.

20
M

CO5

	(b) Draw the Van Krevelen diagram and create cross plots to determine the kerogen types.		
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