



UNIVERSITY OF RUHUNA
FACULTY OF FISHERIES AND MARINE SCIENCES & TECHNOLOGY

Academic Year 2022/2023

Bachelor of Science Honours in Marine and Freshwater Sciences Degree

Level IV Semester I Examinations - April /May 2024

OCG 4113 – Introduction to Upstream Petroleum Industry

Time: 2 hours

Answer All Questions in PART A and only three (3) Questions from PART B

PART B

1.
 - i. Briefly describe the 3 tectonic stages of a rift basin and illustrate the typical heat flow pattern of the basin. (05 Marks)
 - ii. If the rift basin has undergone inversion what are the possible hydrocarbon traps you would expect in it? (05 Marks)
 - iii. How do you determine the end of rifting period of the basin? (05 Marks)
 - iv. An exploration well drilled in the basin is thought to have penetrated the potential hydrocarbon source rock. Describe the types of analyses you would perform to understand its hydrocarbon source rock potential. (10 Marks)
2.
 - i. What is LWD and MWD? (02 Marks)
 - ii. What is natural gamma ray log and what is it used for? (03 Marks)
 - iii. Describe why neutron porosity log gives accurate readings only in limestone. (02 Marks)
 - iv. What is a caliper log and mention its advantages. (03 Marks)
 - v. Describe the difference between laterologs and induction logs. (05 Marks)
 - vi. Describe the advantages of the resistivity log. (10 Marks)
3.
 - i. What are the factors you should consider before venturing into oil exploration in a frontier basin? (05 Marks)
 - ii. Giving reason describe the hydrocarbon potential in the Sri Lanka side of the Cauvery basin. (05 Marks)
 - iii. What are the challenges for oil exploration in the Mannar Basin? (05 Marks)
 - iv. Briefly describe the history and status of hydrocarbon exploration in Sri Lanka. (10 Marks)
4. Write short notes on any five (05) of the following.
 - i. Blowout preventer.
 - ii. Advantages of using a drilling fluid during drilling.
 - iii. Swiss cheese model of adverse events.
 - iv. API Gravity.
 - v. Hydrocarbon traps.
 - vi. Hydrocarbon reserves vs resources.

(05 * 5 = 25 Marks)

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