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Bengaluru

Mid Term Examinations - October 2026

Date: 06/10/2026 **Time:** 11:45 AM - 01:15 PM

Course Code: PET2101 **Course Name:** Petroleum Geology

Semester: Third Semester **Max. Marks:** 50 **Weightage:** 50%

CO - Levels	CO1	CO2	CO3
Marks	22	24	44

PART A: Answer Following Questions. 10 M

Q.N.	Questions	M	CO	BT
1	List two functions that a geomorphic agent serves in general.	2	CO1	BT1
2	Describe Convergent Plate Boundary along with consequences.	2	CO2	BT1
3	Define Weathering.	2	CO2	BT1
4	Outline the importance of Petroleum System.	2	CO3	BT1
5	State the characteristics that help us identify a good Petroleum Source Rock	2	CO3	BT1

PARTB: Answer Any 1 Following Questions. 20 M

Q.N.	Questions	M	CO	BT
06.A	(i) The Earth is a member of the Solar System, and several theories and hypotheses have been proposed to explain its origin and evolution. These theories can broadly be classified into two major groups based on their fundamental concepts and mechanisms of planetary formation. Summarize the basic differences between these two groups of theories, highlighting their principal assumptions regarding the origin and formation of the Earth. (ii) Explain the “Twin Sun Theory,” which is considered one of the proposed theories for explaining the origin and formation of the Earth.	10	CO1	BT2
06.B	Demonstrate how the evidence from continents can be used to support the concept of Continental Drift.	10	CO2	BT3
07.A	Summarize how the age of the Earth has been determined and explain its geological significance.	10	CO1	BT2
07.B	Apply the concept of weathering to explain how exposed rocks are transformed into regolith and soil.	10	CO2	BT3

PARTC: Answer Any 1 Following Questions. 20 M

Q.N.	Questions	M	CO	BT
08.A	Demonstrate how a petroleum geologist integrates geological, geophysical, and geochemical information to select a drilling prospect.	10	CO3	BT3

08.B	Source rocks are commonly classified according to the type of Kerogen they contain, which significantly influences the nature and composition of hydrocarbons generated during thermal maturation. (I) Determine the type of Source Rock/Kerogen primarily associated with the generation of waxy crude oil. (II) Apply your understanding of organic-matter characteristics, depositional environments, and preservation conditions to classify and distinguish the source-rock types capable of generating: (i) predominantly waxy crude oil, (ii) both oil and natural gas, and (iii) predominantly natural gas with associated light oil.	10	CO3	BT3
09.A	Apply organic richness, kerogen quality, and thermal maturity criteria to distinguish between Potential, Effective, and Exhausted Source Rocks.	10	CO3	BT3
09.B	Assume that you have recently joined an oil and gas exploration company as an Assistant Driller and are assigned to a drilling rig. The prognosed reservoir is expected at approximately 4500 m depth. However, at about 4200 m, the Wellsite Geologist recommends terminating further drilling after examining the drill cuttings and concludes that the probability of encountering a conventional petroleum-bearing sedimentary reservoir at greater depth is negligible. The drill cuttings recovered from the well include shale, sandstone, mudstone, dolerite, and graphite. (a) Apply your knowledge of petroleum geology to identify the rock cutting that provides the strongest evidence for terminating further drilling. (b) Interpret the geological significance of this rock type and determine why encountering it may indicate that further drilling is unlikely to encounter the predicted conventional oil and gas reservoir.	10	CO3	BT3