Geography · GS - I

Give a geographical explanation of the distribution of off-shore oil reserves of the world. How are they different from the on-shore occurrences of oil reserves?

EXAM YEAR	PAPER	SUBJECT
2025	GS - I	Geography

MARKS	WORD LIMIT
15	~250 words

Answer Hint

Continental shelves, sedimentary basins, passive margins, marine sediments, petroleum systems, offshore drilling, geological traps, accessibility, technology

Model Answer

Introduction

Offshore petroleum accumulations are primarily associated with sedimentary basins beneath continental shelves and adjacent marine margins where suitable geological conditions permitted petroleum formation and trapping.

1. Geographical Distribution

Major offshore reserves occur in regions such as the Persian Gulf, Gulf of Mexico, North Sea, offshore West Africa, South China Sea and offshore Brazil. Their distribution reflects the presence of thick sedimentary sequences, organic-rich source rocks, suitable reservoir rocks, seals and structural or stratigraphic traps.

Passive continental margins are particularly important because prolonged sediment accumulation creates favourable petroleum systems.

2. Offshore versus Onshore Occurrences

Onshore reserves occur beneath continental landmasses, commonly in sedimentary basins such as those of West Asia, Russia and North America. Offshore reserves occur beneath seabeds, especially across continental shelves and deeper marine basins.

Offshore extraction generally involves greater technological complexity because of water depth, pressure, weather conditions and difficult logistics. It therefore requires specialised drilling platforms, subsea systems and transportation infrastructure.

Conclusion

Thus, the difference is primarily geographical and operational rather than geological: both depend on petroleum-system conditions, but offshore exploitation involves substantially greater environmental, technological and logistical challenges.

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