

Question Content	Option 1	Option 2	Option 3	Option 4
A detailed study of many oils by Martin et al. (1963) showed that	Young-deep oils are viscous with higher API gravity, more paraffinic, and low in sulfur content.	Young-deep oils are less viscous, of higher API gravity, more paraffinic, and low in sulfur content.	Young-deep oils tend to be heavy and viscous, generally sulfurous, relatively low in paraffins and aromatics.	Young-shallow oils tend to be light and viscous, generally sulfurous and relatively rich in paraffins and aromatics.
Choose <u>Correct Definition</u> of Crude oil defined jointly by API, AAPG, and SPE:	A mixture of hydrocarbons that existed in the mixed phase in natural underground reservoirs and remains liquid at atmospheric pressure after passing through surface separating facilities	A mixture of hydrocarbons that existed in the liquid phase in natural underground reservoirs and remains liquid at atmospheric pressure after passing through surface separating facilities	A mixture of hydrocarbons that existed in the gaseous phase in natural underground reservoirs and remains liquid at atmospheric pressure after passing through surface separating facilities	All of the above
Choose the correct cause of overpressure in the subsurface environment from the list:	Structural	Artesian	Diagenetic	All of these options are appropriate
Choose the most common lithological permeability barrier amongst the following:	Sandstone	Carbonate	Evaporite	Conglomerate
Following is a partial list of conditions required for formation of commercial pool of hydrocarbon. Choose the <u>CORRECT</u> statement.	There must be an inorganic-rich source rock to generate the oil and/or gas.	The source rock must have been cooled sufficiently to yield its petroleum.	There must be a reservoir which is porous and permeable to contain the expelled hydrocarbons.	All of the above are incorrect.
Following is a partial list of conditions required for formation of commercial pool of hydrocarbon. Choose the <u>CORRECT</u> statement.	There must be an organic-rich source rock to generate the oil and/or gas.	The source rock must have been cooled sufficiently to yield its petroleum.	There must be a reservoir which is porous and impermeable to contain the expelled hydrocarbons.	All of the above are incorrect.

Following is a partial list of conditions required for formation of commercial pool of hydrocarbon. Choose the <u>INCORRECT</u> statement.	The reservoir must be sealed by an impermeable cap rock to prevent the upward escape of petroleum to the earth's surface.	Source, reservoir, and seal must be arranged in such a way as to release the petroleum.	The timing of trap formation, petroleum generation, and accumulation must be in a favorable sequence.	The accumulation must be preserved or protected from breaching, flushing, aerobic bacteria, thermal degradation, etc. until exploitation.
Heavier members of the paraffin series	Form biogenically	Only produced by the thermal maturation of inorganic matter	Only produced by the thermal maturation of organic matter	Only found as marsh gases
In a crude oil classification scheme proposed by Biederman (1965), Cenozoic oil occurs at	Less than 1600 m as well as 3000 m	Less than 600 m as well as 3500 m	Less than 600 m as well as 3000 m	All of the above
In a crude oil classification scheme proposed by Biederman (1965), Mesozoic oil occurs at	Less than 1600 m as well as 3000 m	Less than 600 m as well as 3000 m	Less than 2600 m as well as 4000 m	All of the above
It is observed that, in the subsurface, below the minimum temperature, oil remains trapped in the form of	Kerogen	Naphthene	Cycloalkane	None of the above
It is observed that, in the subsurface, below the minimum temperature, oil remains trapped in the form of	Kerogen	Naphthene	Cycloalkane	None of these options are appropriate
Once the temperature in the source exceeds the above the maximum temperature the oil is converted to ____	Natural gas through the process of thermal cracking.	Gas condensate through the process of thermal cracking.	Natural gas through the process of thermal insulation.	None of the above

Once the temperature in the source exceeds the above the maximum temperature the oil is converted to ____	Natural gas through the process of thermal cracking.	Gas condensate through the process of thermal cracking.	Natural gas through the process of thermal insulation.	None of these options are appropriate
Out of the four major subsurface environments, the ZONE-1 is defined as follows:	Depth of about 1 to 3 km; salinity gradually increases with depth. Saline formation water is ionized,	Depth greater than 3 km; chemically reducing environment in which hydrocarbons form. Salinity is uniform with increasing depth; may even decline if overpressured.	Incipient metamorphism with recrystallization of clays to micas.	Surface, depth of about 1 km; zone of circulating meteoric water. Salinity is fairly uniform,
Subsurface waters have four characteristics	Eh, Viscosity, concentration, and composition	Eh, pH, concentration, and composition	Eh, specific gravity, concentration, and composition	All of the above
Temperature window required for formation of hydrocarbons, is	Oil: 50–150 °C, Gas: 150–200 °C	Oil: 150–250 °C, Gas :150–200 °C	Oil: 50–150 °C, Gas:250–290 °C	None of the above
____ basins are grouped under Category-I covering ____% of total basinal area and holding ____% of the total unrisks conventional hydrocarbon i	7, 30%, 80%	10, 31%, 85%	7, 20%, 85%	7, 20%, 00%
According to Rittenhouse's (1972), Classification of Stratigraphic Traps, Bars and Reefs are stratigraphic traps which are associated with	Associated with unconformities, Depositional, Diagenetic	Unassociated with unconformities, Diagenetic	Unassociated with unconformities, Depositional,	All of these options are appropriate
According to Rittenhouse's (1972), Classification of Stratigraphic Traps, Onlap and strike valleys are stratigraphic traps. Which are	Associated with unconformities, Supraunconformity	Associated with unconformities, Depositional, Diagenetic	Unassociated with unconformities, Diagenetic	Unassociated with unconformities, Depositional

Choose the appropriate mode of formation of Sedimentary basins	Convergent,	Divergent	Transform settings	All of these options are appropriate
Type-II Kerogen are	Hydrogen rich, which are formed from deposited algae the in the deep lakes and It trends to generate waxy crude oil.	formed from pyto- and zootoplankton in marine environments and mostly , It generated both oil and gas that had been buried in depth.	formed from plant that had been decomposed by fungi and bacteria and most of them became to coal and coaly shale	formed in terrestrial environment with oxidize and recycled woody debris matter.
Type-III Kerogen are	Hydrogen rich, which are formed from deposited algae the in the deep lakes and It trends to generate waxy crude oil.	formed from pyto- and zootoplankton in marine environments and mostly , It generated both oil and gas that had been buried in depth.	formed from plant that had been decomposed by fungi and bacteria and most of them became to coal and coaly shale	formed in terrestrial environment with oxidize and recycled woody debris matter.
Type-IV Kerogen are	Hydrogen rich, which are formed from deposited algae the in the deep lakes and It trends to generate waxy crude oil.	formed from pyto- and zootoplankton in marine environments and mostly , It generated both oil and gas that had been buried in depth.	formed from plant that had been decomposed by fungi and bacteria and most of them became to coal and coaly shale	formed in terrestrial environment with oxidize and recycled woody debris matter.
Which of the following is an important distinction between primary and secondary migration?	Primary migration is understood as the emigration of hydrocarbons from the source rock (clay or shale) into permeable carrier beds and secondary migration refers to subsequent movement of oil and gas within permeable carrier beds and reservoirs	Secondary migration is understood as the emigration of hydrocarbons from the source rock (clay or shale) into permeable carrier beds and Primary migration refers to subsequent movement of oil and gas within permeable carrier beds and reservoirs	Primary migration is entrapment within a permeable bed whereas secondary migration is emigration of hydrocarbons from the trap to seal.	All of these options are appropriate
Which of the following is considered as better seal over the other?	Evaporite	Shale	Sand	Carbonate

Within the trap the productive reservoir is termed as	Gross area	The pay	Gross volume	None of these options are appropriate
Category-II basins are defined as	Basins, which have reserves and already producing.	Basins, which have contingent resources pending commercial production	Basins, which have prospective resources awaiting discovery	All of these options are appropriate
Category-II basins cover ___ of total basinal area, holding ____% of the total hydrocarbon in-place	9%, 23%	23%, 9%	7%, 23%	26%, 10%
Category-III basins are defined as	Basins, which have contingent resources pending commercial production	Basins, which have reserves and already producing.	Basins, which have prospective resources awaiting discovery	All of these options are appropriate
Category-III basins cover ____% of total basinal area, holding ____% of the total hydrocarbon in-place	47%, 12%	44%, 12%	47%, 06%	40%, 06%
Choose the correct options for the Onland, Offshore as well as total basinal areas (in sq. km) of Krishna Godavari basin from the following:	28,000, 24,000 and 52, 000	51,000, 28,000 and 3,500	51,000, 24000 and 1, 00,000	116,000, 3500, and No onshore occurrences
Choose the correct options for the Onland, Offshore total Basinal Areas (in sq. km) Cambay basin from the following:	51,000 and 2,500	53,000 and 2,500	51,000 and 3,500	51,000 and 1,00,000

Choose the correct options for the Onland, Offshore total basinal areas (in sq. km) of Mumbai Offshore basin from the following:	116,000 and No onshore occurrences	No offshore occurrences and 116,000	51,000 and 1, 00,000	116,000 and 51,000
For Mumbai Offshore Basin, Major Identified play types are	1. Paleogene Synrift clastics(Paleocene-Lr. Eocene, Panna Fm) 2. Eocene Carbonate Platform (Bassein formation) 3. Lr.Oligocene Carbonate plays (Mukta and Heera formations) 4. Oligocene-Lr. Miocene deltaic Play (Mahuva &Daman formations) 5. Up. Oligocene carbonates (Panvel and Ratna formations) 6. Lr. Miocene carbonate (L-III and L-IV reservoirs, Bombay / Ratnagiri	1. Paleogene Synrift clastics(Paleocene-Lr. Eocene, Panna Fm) 2. Eocene Carbonate Platform (Bassein formation) 3. Oligocene-Lr. Miocene deltaic Play 4. Lr.Oligocene Carbonate plays (Mukta and Heera formations) 5. Up. Oligocene carbonates (Panvel and Ratna formations) 6. Lr. Miocene carbonate (L-III and L-IV reservoirs, Bombay / Ratnagiri formation) 7. Lr-Mid. Miocene	1. Paleogene Synrift clastics(Paleocene-Lr. Eocene, Panna Fm) 2. Eocene Carbonate Platform (Bassein formation) 3. Up. Oligocene carbonates (Mukta and Heera formations) 4. Oligocene-Lr. Miocene deltaic Play (Mahuva &Daman formations) 5. Lr.Oligocene Carbonate plays (Panvel and Ratna formations) 6. Lr. Miocene carbonate (L-III and L-IV reservoirs, Bombay / Ratnagiri	None of these options are appropriate
Foreland basins are associated with	Continental extension.	Flexure.	Zones of transcurrent deformation.	All of these options are appropriate

Foreland basins can be explained suitably as	Basins formed in Regions where the lithosphere is stretching horizontally, and therefore thins vertically and as the rift grows, slip on faults drops blocks of crust down, producing low areas bordered by narrow mountain ridges. These troughs fill with sediment	Basins develop in the interiors of continents, initially because of subsidence over a rift. They may continue to subside in pulses even hundreds of millions of years after they formed	Basins form along the edges of continents that are not plate boundaries. They are underlain by stretched lithosphere, the remnants of a rift whose evolution successfully led to the formation of a mid-ocean ridge and subsequent growth of a new ocean basin	Basins form on the continent side of a mountain belt because the forces produced during convergence or collision push large slices of rock up faults and onto the surface of the continent
Harding and Lowell (1979) gave classification of structural traps, based on Basement-Cover Relationship, Structural Style, and Dominant Force. Choose the correct option from below as per this scheme.	Basement involved, Wrench Fault, Mantle processes	Basement involved, Regional paleo high, Mantle processes	Basement involved, thrust blocks and reversed faults, Compression	Basement involved, Extensional fault blocks and drape anticlines, Compression
Kerogen is defined as	Similar in composition and in form to the heavier fractions of crude oil found in reservoir rocks,	Insoluble pyrobituminous organic matter that makes up the bulk of organic matter of most nonreservoir sediments.	Similar in composition and in form to the asphaltic fractions of crude oil found in reservoir rocks	All of these options are appropriate
Krishna Godavari Basin is a _____ basin. The basin came into existence following rifting along eastern continental margin of Indian Craton in early _____	Continental active margin pericratonic, Paleogene	Continental passive margin pericratonic, Jurassic	Continental passive margin pericratonic, Cretaceous	Continental forearc passive margin pericratonic, Mesozoic.
Mumbai – Offshore basin is the	Offshore extension of Cambay basin and encompasses the Gulf of Cambay, towards north.	Onshore extension of Cambay basin and encompasses the Gulf of Cambay, towards south.	Offshore extension of Rajasthan basin and encompasses the Gulf of Cambay, towards north.	Onshore extension of Rajasthan basin and encompasses the Gulf of Cambay, towards south.

Mumbai Offshore Basin has an age of the basin ranges from _____ with thick sedimentary fill ranging from _____.	Early Cretaceous to Holocene, 1100-5000 m	Late Cretaceous to Pliocene, 1100-5000 m	Late Cretaceous to Holocene, 1100-5000 m	Late Cretaceous to Holocene, 2000 m
Sedimentary basins are studied using	Nature of fill	Geometry paleogeography	Tectonic setting	All of these options are appropriate
Strike-slip basins are associated with	Continental extension.	Flexure.	Zones of transcurrent deformation.	All of these options are appropriate
Strike-slip movement create	Foreland basins through tectonic compression of oceanic and continental crust during lithospheric flexure.	Tectonic extension where continental rifting is occurring can create a nascent ocean basin leading to either an ocean or the failure of the rift zone.	Accommodation spaces which are occurring as transpressional, transtensional or transrotational basins according to the motion of the plates along the fault zone and the local topography pull-apart basins.	All of these options are appropriate
Tertiary Migration is a process	In which hydrocarbons are expelled from the source rock into an adjacent permeable carrier bed.	Of movement of hydrocarbons along a "carrier bed" from the source area to the trap.	That occurs when petroleum moves from one trap to another or to a seep.	Entrapped in Structural or Stratigraphic Trap

The main Oil and gas fields of Cambay Basin are	Ankleshwar, Gandhar, Kalol, Sanand, Nandassan, North and South Kadi, Hazira and Cambay	Ankleshwar, Heera, South Heera, Sanand, Nandassan, North and South Kadi, Hazira and Cambay	Neelam, Heera, South Heera, B-173, Gandhar, Kalol, Sanand, Nandassan,	Neelam, Heera, South Heera, B-173
The main Oil and gas fields of Mumbai Offshore Basin are	Ankleshwar, Gandhar, Kalol, Sanand, Nandassan, North and South Kadi, Hazira and Cambay	Neelam, Heera, South Heera, B-173, Panna, Mukta, South Tapti (Gas field)	Ankleshwar, Heera, South Heera, Sanand, Nandassan, North and South Kadi, Hazira and Cambay	Neelam, Heera, South Heera, B-173, Gandhar, Kalol, Sanand, Nandassan,
The movement of oil and gas through the permeable rocks seems referable to different causes which are listed below. Choose the correct answer	Gravitation, Capillary attraction, Displacement, Gas pressure, Difference in specific gravities	Gravitation, Specific Gravity, Displacement, Gas pressure, Viscosity	Gravitation, Capillary attraction, migration, Gas pressure, Difference in specific gravities	Gravitation, Capillary attraction, Displacement, Viscosity, Difference in specific gravities
The Mukta and Heera Formations of Mumbai Offshore Basin, which are age equivalents of each other, belong to	Lower Oligocene	Upper Oligocene	Lower Miocene	Upper Miocene
Which of the following are the thrust areas for future exploration in the Cambay basin?	Gulf of Cambay, South Kadi and Linch areas, Flanks of Mehsana Horst basement, and up thrown side of Narmada fault of Ankleshwar,	Stratigraphic traps in the Surat Depression, Heera Bassein Block, Ratnagiri Block, Ratnagiri Arch and Rajapur Depression	Gulf of Cambay, South Kadi and Linch areas, Stratigraphic traps in the Surat Depression, Heera Bassein Block, Ratnagiri Block, Ratnagiri Arch and Rajapur Depression	Gulf of Cambay, South Kadi and Linch areas, Stratigraphic traps in the Surat Depression, Gulf of Cambay, South Kadi and Linch areas,
Which of the following are the thrust areas for future exploration in the Mumbai Offshore basin?	Stratigraphic traps in the Surat Depression, Heera Bassein Block, Ratnagiri Block, Ratnagiri Arch and Rajapur Depression	Stratigraphic traps in the Surat Depression, Heera Bassein Block, Ratnagiri Block, Gulf of Cambay and Rajapur Depression	Stratigraphic traps in the Surat Depression, Heera Bassein Block, Ratnagiri Block, Ratnagiri Arch and Central part of Tarapur depression	Stratigraphic traps in the Surat Depression, Heera Bassein Block, Ratnagiri Block, Ratnagiri Arch and Flanks of Mehsana Horst basement