

- ✓1. What is Inorganic theory of origin of petroleum? The Inorganic theory had to be given up in favor of organic theory on the basis of some facts. Give at least four facts. $1 + 2 = [3]$
- ✓2. Scientists ultimately considered two processes for the formation of petroleum. What are these? Write few words about these processes. $1 + 3 = [4]$
- ✓3. What is OPEC? What is the function of OPEC? $1 + 1 = [2]$
- ✓4. What is Shale? Write the different fractions of crude oil and their important products. $1 + 3 = [4]$
- ✓5. What is the function of bubble cap tray used in petroleum refining? Explain with the help of diagram. $[3]$
- ✓6. An unknown crude oil is found to have the following fractions at different boiling points.
 $T_{30\%} \rightarrow 150^\circ\text{C}$; $T_{50\%} \rightarrow 245^\circ\text{C}$; $T_{70\%} \rightarrow 500^\circ\text{C}$
The average sp. Gravity is given as $\rho = 0.8570$. Find out the characterization value "K" and predict the type of crude oil. $[3]$
- ✓7. What is the feedstock for catalytic reforming? Write three major chemical reactions which are taking place during the catalytic reforming? $1 + 2 = [3]$
- ✓8. Draw a schematic diagram of a catalytic reforming unit indicating necessary components and their functions. $[3]$
- ✓9. What do you mean by catalytic cracking? Give three catalysts used in catalytic cracking processes with their compositions/formulae. $1 + 2 = [3]$
- ✓10. What are the feedstocks for the following? $[3]$
a) Catalytic cracking, b) Alkylation, c) Coking, d) Transformer oil, e) Production of Macrocrystalline wax, f) Production of Microcrystalline wax.
- ✓11. Why do we need to regulate the amount of n-paraffins in aviation and Jet fuels? $[2]$
- ✓12. Write the specifications of Diesel fuel. $[3]$

✓3. Write few lines about the followings:

2 x 5 = [10]

a) Octane number, b) Cetane number, c) Aniline point, d) Anti-knocking agents, e) Naphtha cracking

✓14. How petrol engine is different from diesel engine.

[1]

✓15. Draw a schematic diagram of the production of paraffin waxes.

[2]

✓16. How macro- and micro-crystalline waxes are refined?

[2]

✓17. What is petroleum jelly? Give two applications of it.

[2]

✓18. What are asphalts and bitumen? Give two applications of bitumen.

[3]

✓19. Give two applications of the followings:

a) Refined wax, b) Plastic wax

1 + 1 = [2]

✓20. What is compounded oils? Write two major uses of it.

1 + 1 = [2]