

SEMESTER VII
MAJOR COURSE – MJ 16
FOSSIL FUEL GEOLOGY
Full Marks: 75 Time: 3 Hours

GROUP – A

Q1. Choose the correct answer:

1. Lignite is commonly known as:
(a) Brown coal (b) Hard coal (c) Black diamond (d) Anthracite **(1 mark)**
2. Coal liquefaction is the process of converting coal into:
(a) Liquid hydrocarbons/fuels (b) Natural rock (c) Methane only (d) Water **(1 mark)**
3. Crude oil generally has a lower density than:
(a) Most rocks (b) Water always (c) Methane (d) Natural gas **(1 mark)**
4. A cap rock should generally have:
(a) Very low permeability (b) Very high permeability (c) Very high porosity only (d) No strength **(1 mark)**
5. The Bokaro coalfield is located in:
(a) Jharkhand (b) Gujarat (c) Odisha (d) West Bengal **(1 mark)**

Q2. What is coal rank? Explain the progressive changes from peat to anthracite during coalification. (5 marks)

Q3. What are petroleum traps? Briefly describe structural and stratigraphic traps. (5 marks)

GROUP – B

Answer any four questions. (4 × 15 = 60)

Q4. Discuss the origin, classification and properties of coal. Explain the importance of coal petrology in the evaluation of coal resources. **(15 marks)**

Q5. Give a detailed account of Coal Bed Methane, including its global and Indian status. Explain underground coal gasification and coal liquefaction. **(15 marks)**

Q6. Explain the chemical composition and physical properties of crude petroleum. Discuss the origin, migration and accumulation of petroleum. **(15 marks)**

Q7. Discuss petroleum reservoirs and reservoir rocks. Explain reservoir porosity, permeability, reservoir fluids and general reservoir properties. **(15 marks)**

Q8. Explain petroleum traps and cap rocks. Discuss structural, stratigraphic and combination traps and their significance in hydrocarbon accumulation. **(15 marks)**

Q9. Give a detailed account of Indian coalfields and petroleum occurrences, with special emphasis on the major coalfields of Jharkhand. **(15 marks)**