

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

GROUP – A

Q1. Choose the correct answer:

1. Which coal has the highest rank among the following?
(a) Anthracite (b) Lignite (c) Peat (d) Sub-bituminous coal **(1 mark)**
2. Methane associated with coal seams is known as:
(a) Coal Bed Methane (b) Oil shale gas (c) Biogas only (d) Town gas **(1 mark)**
3. Petroleum is composed predominantly of:
(a) Hydrocarbons (b) Carbonates (c) Silicates (d) Oxides **(1 mark)**
4. The ability of a reservoir rock to transmit fluid is called:
(a) Permeability (b) Porosity (c) Viscosity (d) Density **(1 mark)**
5. Which is an important coalfield of Jharkhand?
(a) Jharia (b) Talcher (c) Neyveli (d) Singrauli **(1 mark)**

Q2. Differentiate between peat, lignite, bituminous coal and anthracite on the basis of rank and properties. (5 marks)

Q3. Explain the basic concept of Coal Bed Methane extraction and mention its importance in the Indian energy sector. (5 marks)

GROUP – B

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

Q4. Explain the origin of coal and its classification. Discuss the fundamentals of coal petrology and important coal macerals. **(15 marks)**

Q5. Discuss CBM resources and their exploitation. Explain underground coal gasification and coal liquefaction and their economic significance. **(15 marks)**

Q6. Describe crude petroleum with respect to its chemical composition, physical properties, origin and major theories of petroleum formation. **(15 marks)**

Q7. Explain reservoir rocks and reservoir properties. Discuss porosity, permeability, reservoir fluids and factors controlling the quality of a petroleum reservoir. **(15 marks)**

Q8. Define petroleum traps and cap rocks. Discuss structural, stratigraphic and combination traps with suitable geological examples. **(15 marks)**

Q9. Describe the distribution of coal in India. Discuss the important coalfields of Jharkhand and their geological and economic significance. **(15 marks)**