

**2023**  
**M.Sc.**  
**Third Semester**  
DISCIPLINE SPECIFIC ELECTIVE – 01  
**GEOLOGY**  
*Course Code: MGLD 3.11 (A)*  
(Fuel Geology & Geochemistry)

*Total Mark: 70*  
*Time: 3 hours*

*Pass Mark: 28*

*Answer five questions, taking one from each unit.*

**UNIT-I**

1. Define coal. Discuss in detail about the chemical analysis of coal. 2+12=14
2. Write notes on the following: 7×2=14
  - (a) CBM
  - (b) Surface mining techniques

**UNIT-II**

3. What do you understand by migration of petroleum? Explain in detail the parameters influencing primary and secondary migration of oil. 2+12=14
4. Write notes on the following: 7×2=14
  - (a) Origin and composition of crude oil
  - (b) Maturation of kerogen

**UNIT-III**

5. Write notes on the following: 7×2=14
  - (a) Bombay high oilfield
  - (b) Carbonate reservoir rock
6. What are atomic fuels? Discuss the different mode of occurrence and its nature of association. 2+12=14

## UNIT-IV

7. Write notes on the following: 7×2=14  
(a) Abundance of elements within the different layers of the Earth  
(b) Properties of elements in the modern periodic table
8. Write notes on the following: 7×2=14  
(a) Geochemical classification of elements  
(b) Transition elements

## UNIT-V

9. What are radiogenic isotopes? Explain the radio metric dating methods of single minerals using U-Pb and K-Ar isotopic systems. 2+12=14
10. Write notes on the following: 7×2=14  
(a) Concept of geological ages and blocking temperatures  
(b) Stable isotope fractionation
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