

Model Question Paper SET2
Paper : MJ 10 (GEOCHEMISTRY AND ISOTOPE GEOLOGY)
Subject : Geology

Full Marks: 75

Time: 3 hours

Group A

(Short answer-type compulsory questions)

Q1. Fill in the blanks: [5x1=5]

- a) _____ elements have an affinity for metallic phases.
- b) The separation of Earth's material into core, mantle and crust is known as geochemical _____.
- c) Changes in pressure and temperature can influence mineral _____ and element partitioning
- d) REE stands for _____
- e) The half-life is the time required for _____ of the radioactive parent atoms to decay

Q2. Define geochemistry and discuss its scope. [5]

Q3. Differentiate between compatible and incompatible elements with examples. [5]

Group B [4 X 15]

Answer any four

(Subjective/ Descriptive questions)

Q4. Discuss Geochemical differentiation of the Earth.

Q5. Discuss HFSE, LILE and REE and explain their significance in understanding geological processes.

Q6. Discuss the principles of radioactive decay and radiometric dating

Q7. Explain Goldschmidt's classification of elements in detail and discuss its geological significance.

Q8. Explain the concept of geochemical reservoirs and discuss the transfer of elements between different reservoirs.

Q9. Write the petrographic characteristic of any 3 of the following rocks:

- i. What are HFSE? Give examples.
- ii. What are LILE? Give examples.
- iii. What are Rare Earth Elements?
- iv. Explain the significance of REE in geochemistry.
- v. What is a geochemical anomaly?

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