

SEMESTER VI
MAJOR COURSE – MJ 12
ECONOMIC AND EXPLORATION GEOLOGY

Full Marks: 75 Time: 3 Hours

GROUP – A

Q1. Choose the correct answer:

1. A natural concentration of valuable minerals that can be economically extracted is called:
(a) Ore deposit (b) Ore (c) Tenor (d) Grade **(1 mark)**
2. Which term indicates the proportion of valuable metal in an ore?
(a) Gangue (b) Tenor (c) Lode (d) Reserve **(1 mark)**
3. Greisen deposits are commonly associated with:
(a) Hydrothermal alteration (b) Residual enrichment (c) Placer formation (d) Mechanical weathering **(1 mark)**
4. Geochemical exploration is mainly based on the study of:
(a) Fossil distribution (b) Chemical distribution of elements (c) Rock colour (d) Crystal shape **(1 mark)**
5. Which mineral is an important non-metallic resource of India?
(a) Mica (b) Iron (c) Copper (d) Manganese **(1 mark)**

Q2. What are mineral resources and reserves? Explain the difference between the two. (5 marks)

Q3. Describe the structure and texture of ore deposits and explain their importance in ore-deposit studies. (5 marks)

GROUP – B

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

Q4. Discuss the concepts of ore, gangue, tenor, grade, lode, mineral resources and reserves. Explain the classification of economic mineral deposits. (15 marks)

Q5. Describe the origin and characteristics of magmatic, skarn, greisen and hydrothermal ore deposits. (15 marks)

Q6. Discuss the mode of occurrence, composition, uses and distribution in India of lead, zinc, mica, asbestos and limestone deposits. (15 marks)

Q7. What are metallogenic provinces and metallogenic epochs? Give an account of atomic minerals and gemstones, including their economic importance. (15 marks)

Q8. Explain drilling and core logging in mineral exploration. Discuss core and non-core drilling, borehole location/collar and important aspects of core logging. (15 marks)

Q9. Explain reserve estimation and associated errors. Discuss square, rectangular, triangular and polygonal block methods with their principles and applications. (15 marks)