

SEMESTER VI
MAJOR COURSE – MJ 12
ECONOMIC AND EXPLORATION GEOLOGY

Full Marks: 75 Time: 3 Hours

GROUP – A

Q1. Choose the correct answer:

1. The material surrounding an ore mineral and having little or no economic value is:
(a) Gangue (b) Ore (c) Tenor (d) Grade **(1 mark)**
2. Residual deposits are mainly formed by:
(a) Gangue (b) Weathering and removal of soluble material (c) Lode (d) Reserve **(1 mark)**
3. Which exploration method uses magnetic, electrical or gravity properties?
(a) Geophysical exploration (b) Residual enrichment (c) Placer formation (d) Mechanical weathering **(1 mark)**
4. Which of the following is a metallic ore?
(a) Fossil distribution (b) Copper ore (c) Rock colour (d) Crystal shape **(1 mark)**
5. Bulk density is important in reserve estimation because it helps determine:
(a) Tonnage (b) Iron (c) Copper (d) Manganese **(1 mark)**

Q2. Explain the meaning of mineral exploration and discuss its main stages. (5 marks)

Q3. What are density and bulk density? Explain their importance in mineral-resource and reserve estimation. (5 marks)

GROUP – B

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

Q4. Describe the classification of economic mineral deposits and explain the structure and texture of ore deposits with suitable examples. (15 marks)

Q5. Explain exogenous processes of ore formation, including residual, sedimentary, supergene and placer deposits. (15 marks)

Q6. Give an account of the important iron, copper, manganese, lead and zinc deposits of India, including their distribution and uses. (15 marks)

Q7. Discuss geological, geophysical and geochemical exploration methods. Compare their principles, advantages and limitations. (15 marks)

Q8. Explain prospecting, exploration, sampling and drilling. Discuss sampling errors and the statistical measures used for evaluating sampling data. (15 marks)

Q9. Discuss principles of reserve estimation and factors controlling its reliability. Explain geometrical methods of reserve estimation using square, rectangular, triangular and polygonal blocks. (15 marks)