

M.Sc. (Final) Examination, 2001
GEOLOGY
Paper V
(Mineral Resources and Exploration Geology)

Time Three Hours
Maximum Marks: 190

*Attempt **five** questions in all, selecting
at least **two** questions from each section.
All questions carry equal marks.*

SECTION A

1. Incorporating morphology, mineral association, petrologic and tectonic setting, discuss the genesis of Kuroko type of ore deposits. Cite examples and explain if they have any modern analogues.
2. Distinguish between the members of the following, citing examples and drawing sketches where necessary.
 - (a) Stratiform and stratabound ore deposits.
 - (b) Exhalative and Intracrestal hydrothermal deposits.
3. Write detailed notes on the following
 - (a) Seismic methods of prospecting for hydrocarbon deposits.
 - (b) Pathfinder elements in geochemical prospecting.
 - (c) Association of elements in ore deposits.
4. What factors influence a decision to employ open-cast method of mining a thick coal seam? Describe the machinery used in mining and haulage in this type of mine.
5. Describe the sub-level stoping method of mining, mentioning clearly the methods employed for blasting, mucking and haulage.

SECTION B

6. What are the different types of iron-ore deposit of India? Discuss the various theories of origin put forward to explain the formation of the Banded Iron Formation (BIF) of Singhbun region.
7. Give a brief 'account of the geology and structure of the lead-zinc deposits of Zawar, Rajasthan.
8. What is meant by the term "refractory minerals"? Describe briefly the raw materials needed for the manufacture of basic refractories and give an account of their geological and geographical occurrences in India.
9. Describe the geology of one of the Indian Gondwana coal fields, giving a cross section to elucidate the structure.

10. Write geological notes on any **three** of the following
- (a) Fire clay deposits of Bengal, Bihar, Jharkhand.
 - (b) Origin of natural salt in Rajasthan.
 - (c) Bihar mica belt of Hazaribag-Santhal pargana area of Tharkhand State.
 - (d) Building stones of Southern India.