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GEOLOGY

(Major)

Paper : 6.1

(Ore Genesis and Prospecting)

Full Marks : 60

Time : 3 hours

The figures in the margin indicate full marks for the questions

GROUP—A

1. Answer the following questions as directed :

1×4=4

(a) What is the difference between ore and protore?

(b) Name two ore minerals which are formed by magmatic process.

(c) Skarn deposit is a magmatic deposit.

(Write True or False)

(d) Supergene enrichment deposits are found _____ the groundwater table.

(Fill up the blank)

(*Turn Over*)

2. Answer the following questions in brief : 2×3=6

(a) Write the composition of hydrothermal solution.

(b) What are the factors that control ore localization?

(c) Write the chemical composition of galena, azurite, limonite and gibbsite.

3. Answer any *two* questions from the following :

5×2=10

(a) Write briefly about the processes involved in the formation of placer deposits.

(b) What are metallogenic provinces? Write shortly about the two metallogenic provinces of India.

(c) Give short account on 'district zoning' and 'regional zoning' with relevant examples.

4. Define 'ore deposits'. Mention different classification schemes of ore deposits. Briefly describe the salient features of the genetic classification scheme of Lindgren.   2+4+4=10

Or

What is magmatic ore deposit? What are the different classifications of magmatic ore deposits? Briefly explain different divisions of late magmatic deposits.

2+4+4=10

5. Elaborate with example the role of plate tectonics in the origin and distribution of ore mineralization along divergent and convergent plate boundaries.   10

Or

Write on the following :   5+5=10

(a) Genesis of porphyry copper deposits

(b) Genesis of banded iron formation

GROUP—B

6. Answer the following questions as directed :

1×3=3

(a) A 'Hodograph' is a curve plotted on graphs which depicts the time taken by a wave travelling from the point of exploration to a seismograph.

(Write True or False)

(b) _____ is described as the difference between the observed and predicted gravity values after applying all the corrections.

(Fill up the blank)

(c) What is 'contouring'?

7. Define the terms 'Adit' and 'Level' in case of underground mining.

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8. Answer any *one* of the following :   5

   (a) Write briefly about electrical resistivity method of prospecting.

   (b) Explain the different types of radiometric survey.

9. What are the differences between prospecting and exploration? Discuss the principles and methods of geological prospecting.   2+8=10

Or

Differentiate between anomaly and background. Describe different geochemical prospecting methods used for metallic mineral deposits.   2+8=10

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