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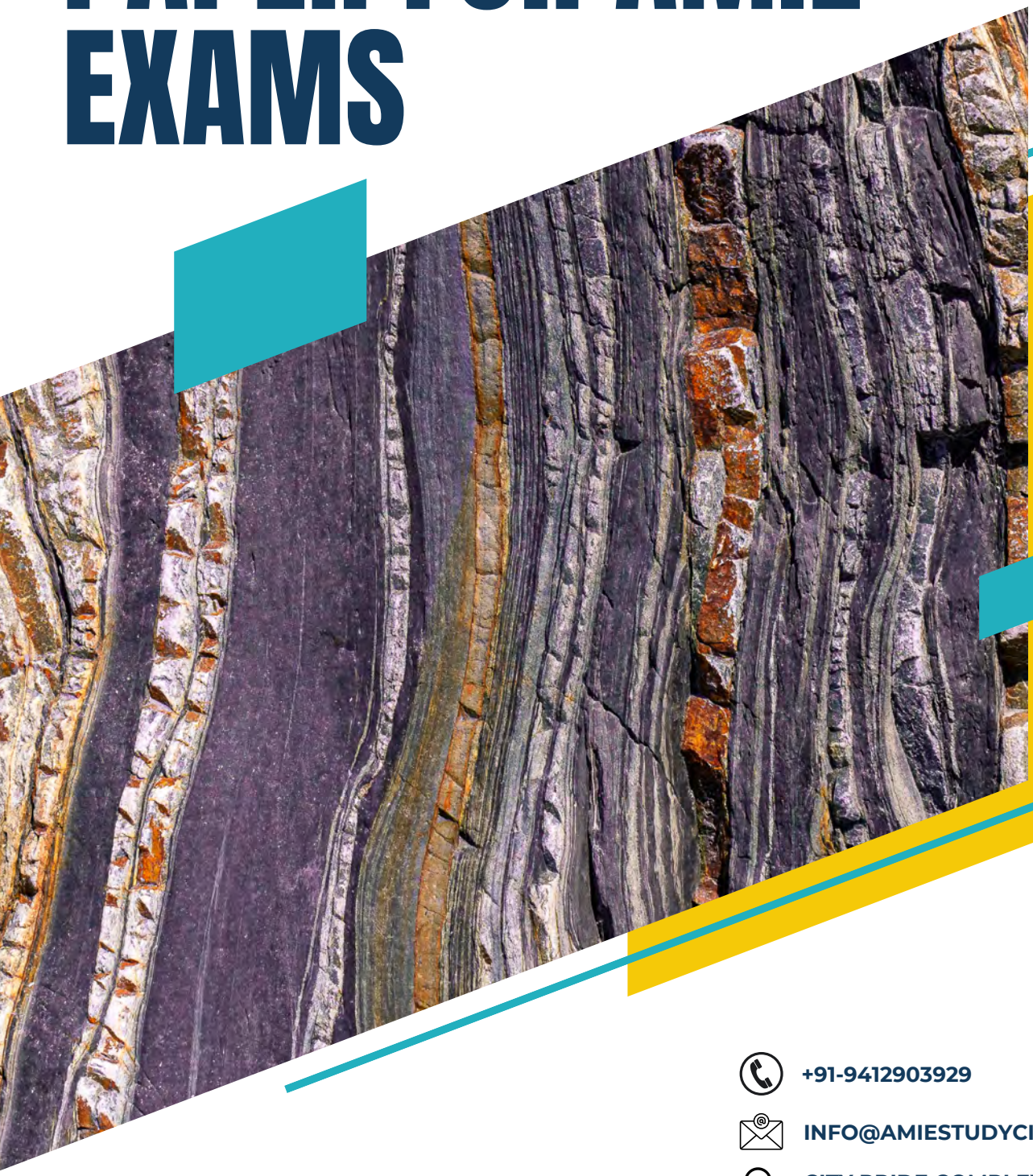
MODEL TEST PAPER FOR AMIE EXAMS



MINING GEOLOGY AND DEVELOPMENT OF MINERAL DEPOSITS

TEST PAPER 1

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MINING GEOLOGY AND DEVELOPMENT OF MINERAL DEPOSITS

***Time**: Three Hours*

***Maximum Marks**: 100*

Answer five questions, taking ANY TWO from Group A, any two from Group B and all from Group C.

All parts of a question (a, b, etc.) should be answered at one place.

Answer should be brief and to-the-point and be supplemented with neat sketches.

Unnecessary long answer may result in loss of marks.

Any missing or wrong data may be assumed suitably giving proper justification.

Figures on the right-hand side margin indicate full marks.

Group A

1. (a) Define process of formation of sedimentary rocks and basics of classification. Describe sedimentary rocks: (a) sand stone (b) limestone with type of economic mineral deposits hosted by them. 10

   (b) Define metamorphic rocks and the process of formation. 10

2. (a) Describe in brief the origin, formation, mode of occurrence and distribution of major coal deposits in India. 8

   (b) Explain the term "metallogenic province." 6

   (c) Describe various types of folds. 6

3. (a) Describe the mechanism of formation of folds, faults, joints and breccia zones. 8

   (b) Explain axial plane of fold. 6

   (c) Enumerate the geological documentation required for mine planning for extraction of the following metal mining deposits: 6

   (a) copper ore

   (b) iron ore

4. (a) Define principles of geophysical exploration. Provide a brief account of various geophysical methods of mineral exploration. Elaborate on magnetic survey. 10

   (b) Mention in details the electromagnetic method of exploration. 10

Group B

5. (a) Write a note on classification of explosives with specific control on blast vibration and fragmentation. 8

   (b) Distinguish between Simba and DTH drill unit. 6

   (c) What is an emulsion explosive? 6

6. (a) Differentiate between slurry and emulsion explosives, and give their applications. 10

   (b) Explain the difference between (a) principles of rotary drilling and percussive drilling (b) detonating fuse and delay action detonator. 10

7. (a) List the common entry system in underground mining. Make a comparative study describing the suitability of each type of entry system. 10

   (b) Provide an account of drilling and blasting operations in shaft sinking. 10

8. (a) Describe shaft sinking method with emphasis on (a) drilling pattern (b) mucking (c) centering (d) lining (e) safety measures. 20

Group C

9. Answer the following in brief: 20

   (i) Raise and winze

   (ii) Washout

   (iii) Sub-grade drilling

   (iv) Cap sensitivity test

   (v) Zero oxygen balance of an explosive

   (vi) Cleavage of a mineral ore

(vii) Coromant cut

(viii) Gangue in a mineral deposit

(ix) Fault vs. joint in structural feature of a metal mining area

(x) Advance vs. retreating longwall working in coal mines

(Refer our course material for answers)