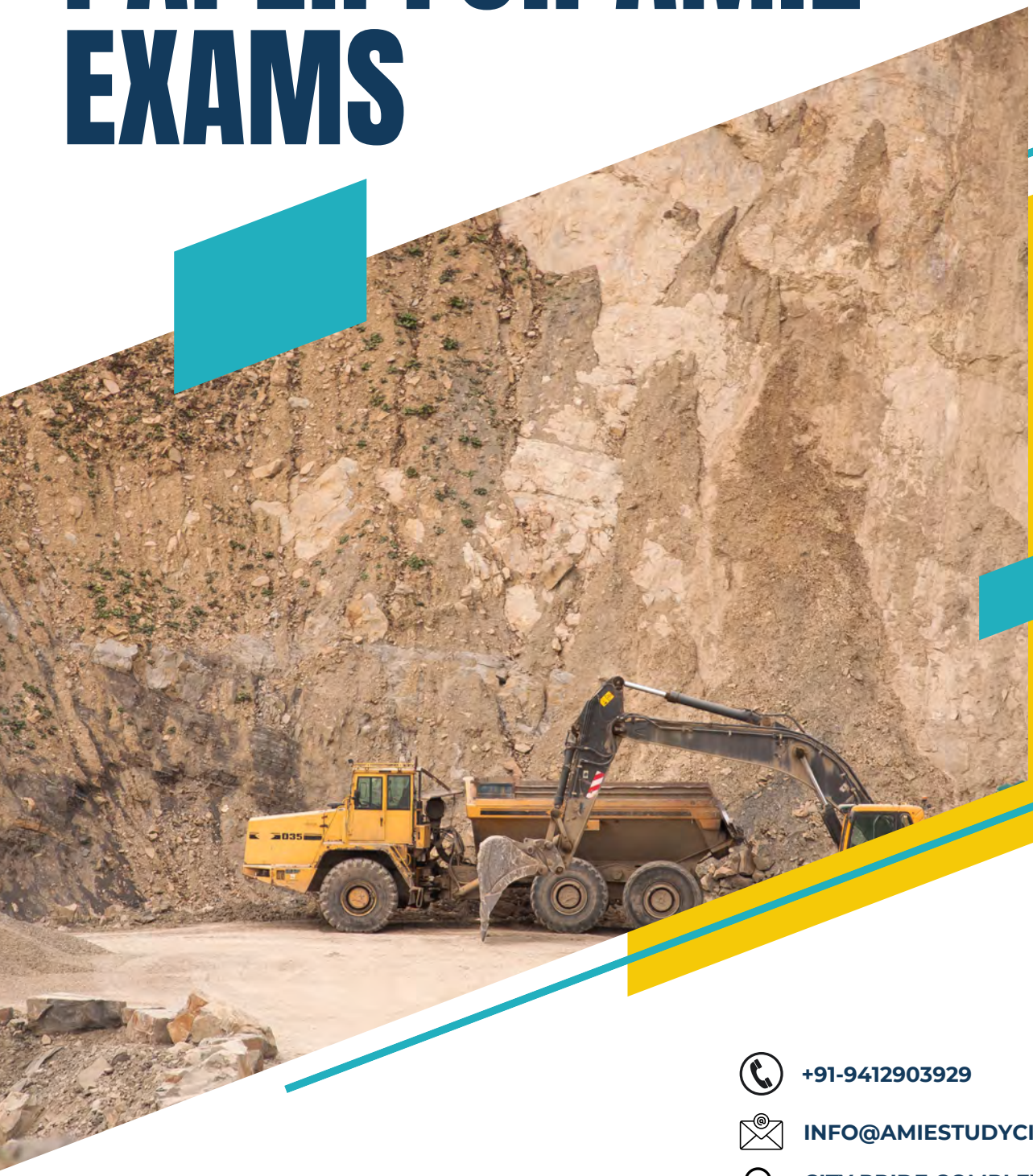
MODEL TEST PAPER FOR AMIE EXAMS



EXPLOITATION OF MINERAL DEPOSITS

TEST PAPER 1

+91-9412903929

INFO@AMIESTUDYCIRCLE.COM

CITY PRIDE COMPLEX, NR IIT CAMPUS, ROORKEE

AMIESTUDYCIRCLE.COM

EXPLOITATION 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) A 2.5 m thick coal seam, dipping at 1 in 10, located at a depth of 100 m from the surface, is to be worked by "Bord and Pillar" method of working. Give the district layout, support system, ventilation arrangements and manpower requirement for a production of 300 ton/day from the district. 10

   (b) Explain in brief different steps followed for hydraulic stowing. Give a layout for surface arrangement in hydraulic stowing. 10

2. (a) What are the current trends of mechanization in Bord and Pillar method of working? Give a layout of one such combination to produce 10,000 ton/month for a developed district. Assume your conditions, state the manpower requirement, production per shift and machines used. 10

   (b) Describe the schemes of pillar development and depillaring by using continuous miners with the help of suitable layouts. 10

3. (a) A coal seam of 2.4 m thickness and lying at a depth of 300 m, and worked out by longwall retreating method. Explain the method step by step with layout, mentioning requirement of machinery and manpower. 10

   (b) State the principle of longwall method of working. What are the basic elements of a longwall face? 10

4. (a) Draw a layout of a longwall retreating face being worked with DERD shearer for a seam having 1.8 m thickness and lying at a depth of 350 m. Describe its salient features and list the face equipment. 10

   (b) Explain in brief, how the following factors influence the choice of coal mining methods (i) depth of the seam (ii) thickness of the seam (iii) characteristics of roof and floor and (iv) hydrological conditions of the coal measures. 10

Group B

5. (a) Under what conditions you would adopt shrinkage stoping? Describe the method stating the limitations. 10

   (b) Explain with neat sketches, the method of raising by raise borer to develop a raise of 3 m dia. 10

6. (a) Distinguish between the following: 10

   (i) Sub level stoping and sublevel caving

   (ii) Drop raising and raise boring

   (b) What is the principle of cut and fill method and what are the necessary conditions for its applications? 10

7. (a) Write short notes on 10

   (i) Block caving

   (ii) Square set stoping method

   (iii) Top slicing

   (iv) blast hole stoping method

   (b) With suitable diagram explain the basic principle of operation of a surface miner. 10

8. (a) Design a mechanised opencast mine for producing limestone 2.0 million tonne per annum. Assume that 15% waste to be handled in addition to limestone. Also, give machinery requirement for extraction of limestone and overburden. 10

   (b) Define the terms (i) overall pit slope (ii) cut off grade (iii) stripping ratio 10

with respect to surface mining.

Group C

9. Answer the following in brief: 20

(i) Angle of break

(ii) Box cut

(iii) Angle of draw

(iv) Electronic detonator

(v) DERD

(vi) Dilution

(vii) HANFO

(viii) Truck dispatch system(TDS)

(ix) Winze

(x) Power support

(Refer our course material for answers)