

Total number of printed pages – 6 **B. Tech**
CPMN 6405

Eighth Semester Examination – 2008

MINE PLANNING AND ECONOMICS

Full Marks – 70

Time : 3 Hours

*Answer Question No. 1 which is compulsory
and any **five** from the rest.*

*The figures in the right-hand margin
indicate marks.*



1. (a) Answer the following questions : 2×5
- (i) What is sieve analysis ? Why is it carried out ?
 - (ii) What does the pre-feasibility report contain ?

- (iii) What is a conceptual study relating to a mining project ?
 - (iv) Why is conservation of minerals required ?
 - (v) Explain the term payback period and its importance.
- (b) Explain briefly the following terms : 2×5
- (i) Transportation advantage
 - (ii) Discounted cash flow analysis
 - (iii) Break even point
 - (iv) Fixed and variable costs
 - (v) Fair trade.

2. (a) What are the unit operations in mining ? Outline the various steps involved in mine planning. 6

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- (b) How will you determine the location of a shaft from access to an underground deposit ? 4
3. (a) What are the essential features of a feasibility report ? How does it differ from a detailed project report ? 6
- (b) Explain how present value ratios can be utilized for determining the optimum size of a mining project. 4
4. A mineable reserve of 5 MT of coal deposit occurs at a depth of 250 m from surface. What factors are to be considered for selection of the mining method, optimum size of the mine and project finance ? 10

5. A project costs Rs. 3.0 lakhs and has a scrap value of Rs. 60,000/-. Its stream of income before depreciation and taxes from first to eight years are Rs. 40,000/-, Rs 56,000/-, (-) Rs. 60,000/-, Rs. 64,000/-, Rs. 72,000/-, Rs. 80,000, Rs. 0/- and Rs. 90,000/- respectively. Assuming a 30% tax rate and depreciation on straight line basis, calculate the accounting rate of return. 10
6. A mine spends Rs. 30/- per tonne on hiring a dumper for the mining operations. The mine is considering three alternatives, viz. purchasing

a new or an old or continuing with hiring the dumper. The estimated costs are as given below :

Itmes	New (Rs.)	Old (Rs.)
Purchase price	25,00,000	15,00,000
Sale price after 10 years	10,00,000	3,00,000
Repair and maintenance cost per year	1,50,000	3,00,000
Interest	5,00,000	3,00,000
Taxes and insurance	2,50,000	3,00,000
Diesel consumption cost per tonne	10.50	13.80

If the production from the mine is 70,000 tonnes/annum, then which of alternative the mine should prefer to minimize the cost of production ? 10

7. (a) Discuss the various concepts of evaluating mining projects. 4

- (b) Write the distinctive features of India's National Mineral Policy ? What major changes are being proposed ? 6

8. (a) Give a flow chart for capital formation in a mining organization. 5

- (b) State the characteristics of a Company. What are differences between a registered company and a partnership firm ? 5