

# CBCS SCHEME

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## Seventh Semester B.E. Degree Examination, July/August 2021 Underground Mine Planning and Design

Time: 3 hrs.

Max. Marks: 100

*Note: Answer any FIVE full questions.*

- 1 a. Briefly explain the Social-Legal-Political Economic impacts of mining. (10 Marks)  
b. With a neat flow chart explain the process of Land Acquisition for mining. (10 Marks)
- 2 a. Explain the process of obtaining Environmental Protection and Permission for mine development. (10 Marks)  
b. Write a short notes on Plant Silting and its construction, impoundments and Dams. (10 Marks)
- 3 a. Explain the various stages of planning of new mines. (10 Marks)  
b. Explain the process of selection of mine sites for development of an underground mine. (10 Marks)
- 4 a. With suitable examples list the applications of computers in mine planning. (10 Marks)  
b. With a neat labeled sketch explain the standard pit bottom layout used in Scotland. (10 Marks)
- 5 a. With a neat sketch explain the Division of mining area into parts. (10 Marks)  
b. Derive an expressions to find out the length of the faces when equipped with Coal Cutter (L<sub>C</sub>) and Cutter Loader (L<sub>CL</sub>) for mining operation. (10 Marks)
- 6 a. Write a short note on Mining Area, Term of life and Mine Capacity. (05 Marks)  
b. Derive an expression to find out the Length, number and position of productive longwall faces in a mining property and list certain arrangements that has to be made for better output. (15 Marks)
- 7 a. What is the benefit of Cut-of-grade in a mining operation? (04 Marks)  
b. List the selection criteria for stoping methods for planning a metal mine. (10 Marks)  
c. List the applications of computers in Stope Design in mining. (06 Marks)
- 8 a. With a suitable example explain the time and work study for improvement of production in a mining operation. (10 Marks)  
b. Explain the optimization of mine size (Mine Production Capacity) based on techno-economic considerations. (10 Marks)
- 9 a. List the various factors to be considered for mine closure. (10 Marks)  
b. With a neat labeled sketch explain UCG process. (10 Marks)
- 10 a. Explain the process of Mine Closure plan and Rehabilitation. (10 Marks)  
b. Explain the various Novel and innovative mining methods. Explain any two briefly. (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.