



# CBCS SCHEME

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17MN44

Fourth Semester B.E. Degree Examination, Jan./Feb. 2021

## Mine Mechanization – I

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

### Module-1

- 1 a. Define isothermal and adiabatic compression. Derive work-done expression for isothermal and adiabatic compression. (10 Marks)  
b. Discuss in detail about the transmission of compressed air. (10 Marks)

OR

- 2 a. With a neat sketch, explain the working principle of Rocker Shovel. (10 Marks)  
b. Discuss in detail on the various parameters to be considered for techno-economic indices of mine haulage system. (10 Marks)

### Module-2

- 3 a. Discuss the care and precautions of wire rope to be taken during storage and use. (10 Marks)  
b. Explain the procedure for carrying out split capel with rivets type of socketing with neat sketch. (10 Marks)

OR

- 4 a. With a neat sketch, explain the working principle of Endless rope haulage. (10 Marks)  
b. With a neat sketch, explain the working principle of gravity haulage. (10 Marks)

### Module-3

- 5 a. With a neat sketch, explain the working principle of Belt conveyor. (10 Marks)  
b. With a neat sketch, explain the working principle of scraper chain conveyor. (10 Marks)

OR

- 6 a. Discuss in detail about Diesel locomotive. (10 Marks)  
b. Write a detailed note on Trolley wire locomotive. (10 Marks)

### Module-4

- 7 a. With neat sketches, explain the different shapes of drums. (10 Marks)  
b. With neat sketches, explain about skip and cage. (10 Marks)

OR

- 8 a. With neat sketch, explain about the ground mounted Koepe winder with its advantages and disadvantages. (10 Marks)  
b. With neat sketch, explain about the multi-rope winding with its advantages and disadvantages. (10 Marks)

### Module-5

- 9 a. With a neat sketch, write a note on suspended caliber brake. (10 Marks)  
b. Write a note on electrical braking of winders. (10 Marks)

OR

- 10 a. Write a note on safety devices used on winders. (10 Marks)  
b. Write a note on track laying and maintenance. (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.