



# CBCS SCHEME

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17MN52

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

## Mine Mechanization-II

Time: 3 hrs.

Max. Marks: 100

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

### Module-1

- 1 a. Describe constructional and functional details of a centrifugal pump. (12 Marks)  
b. Explain in detail the construction and working principle of roto pump with neat sketch. (08 Marks)

OR

- 2 a. Explain how to assess performance of a turbine pump with the help of characteristics curve. (12 Marks)  
b. A turbine pump has six impellers, 30cm diameter running at 1440rpm. The delivery branch is 15cm bore and the suction branch is 18cm bore. For what rate of delivery of water and head should the pump be suitable? What should be the width of impeller outlet around its periphery, assuming a radial velocity of 2.4m/s. Manometric efficiency is 60% and average suction velocity is 1.68m/s. (08 Marks)

### Module-2

- 3 a. What are the different types of road headers used in underground coal mines? (02 Marks)  
b. Explain briefly constructional details of road headers with neat sketch. (08 Marks)  
c. Explain briefly working principle of various types of road headers. (10 Marks)

OR

- 4 a. What are the various type of shearers used in underground longwall face? (02 Marks)  
b. Describe in detail the construction of shearer with line diagram. (12 Marks)  
c. Explain working principle of shearer. (06 Marks)

### Module-3

- 5 a. Write a short note on armoured face conveyor. (08 Marks)  
b. Describe hydraulic props with neat sketch. (12 Marks)

OR

- 6 a. Describe timber chock support arrangement with neat sketch. (10 Marks)  
b. Describe various types of canopy supports used in underground mines. (10 Marks)

### Module-4

- 7 a. What are the various types of loaders used in underground mines? (05 Marks)  
b. Write short notes on various types of loader used in underground mines. (15 Marks)

OR

- 8 a. What are the trackless equipment used in underground coal mines? (04 Marks)  
b. Describe one suck equipment in detail with its application and limitations. (16 Marks)

### Module-5

- 9 a. Why does maintenance require for machinery in mines? (05 Marks)  
b. Explain maintenance management and safety adopted in mines. (15 Marks)

OR

- 10 a. Describe application of CAD in mines. (05 Marks)  
b. What are the possible areas in mining where remote monitoring, controlling and automaton can be implemented? Explain in detail. (15 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.