

CBCS Scheme

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15MN32

Third Semester B.E. Degree Examination, Dec.2017/Jan.2018 Mining Electrical Engineering

Time: 3 hrs.

Max. Marks: 80

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

Module-1

- 1 a. Mention Indian Electricity rules applicable to mining Industry. (08 Marks)
b. Explain the scope and importance of electrical engineering in mining. (08 Marks)

OR

- 2 a. What is an Electric drive? Explain the block diagram of an Electric drive. (08 Marks)
b. With a neat sketch of a coal mine shaft, explain the electric winder system in mines. (08 Marks)

Module-2

- 3 a. Explain Ward-Leonard method of speed control of DC motor. Also give their Advantages. (08 Marks)
b. A 250V DC shunt motor has armature resistance of 0.25Ω on load it takes on armature current of 50A and run at 750rpm. If the flux of the motor is reduced by 10% without changing the load torque. Find the new speed of the motor. (08 Marks)

OR

- 4 a. Explain armature resistance control voltage control and field control of a DC shunt motor. (12 Marks)
b. Explain Electric braking of DC motors. (04 Marks)

Module-3

- 5 a. Explain the working principle of 3-phase Induction motors. (08 Marks)
b. Write the methods employed for speed control of induction motors and explain any 2 method. (08 Marks)

OR

- 6 a. Explain the working principle of synchronous motor. (04 Marks)
b. Explain the working principle of an Alternator (08 Marks)
c. Write about plugging of an Induction motor. (04 Marks)

Module-4

- 7 a. What are circuit breakers? Explain with neat sketch, principle of operation of Air break circuit breaker. (10 Marks)
b. Write short notes on underground cables. (06 Marks)

OR

- 8 a. With a neat sketch, explain the construction and working of bulk oil circuit breaker. (08 Marks)
b. Write a note on flame proof and intrinsically safe apparatus used in mines. (08 Marks)

Module-5

- 9 a. Define the following : i) Lumen ii) Luminous Intensity iii) MHCP
iv) Candle power v) Solid angle. (10 Marks)
b. Describe the standards for mine lighting. (06 Marks)

OR

- 10 a. Write the design steps for lighting systems in open cast and underground mines. (12 Marks)
b. Explain luminance measurement used in mines. (04 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.