

CBCS SCHEME

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17MN32

Third Semester B.E. Degree Examination, Dec.2018/Jan.2019 Mining Electrical Engineering

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. Explain any 10 Indian Electricity Rules applicable to Mining. (10 Marks)
b. With a neat block diagram, explain the parts of an electric drive. (10 Marks)

OR

- 2 a. Explain the scope and importance of Electrical Engineering in Mining. (10 Marks)
b. Discuss the factors that decide the choice of Electric drive. (06 Marks)
c. Write a note on the status of AC and DC drives. (04 Marks)

Module-2

- 3 a. Explain the types of DC motors and mention its applications. (10 Marks)
b. Explain the three methods of speed control of a DC shunt motor. (10 Marks)

OR

- 4 a. A 500V shunt motor runs at its normal speed of 250 rpm when the armature current is 200A. The resistance of armature is 0.12 ohm. Calculate the speed when a resistance is inserted in the field, reducing the shunt field to 80% of normal value and the armature current is 100 Ampere. (10 Marks)
b. Explain dynamic, plugging and regenerative braking of DC shunt motors. (10 Marks)

Module-3

- 5 a. With neat sketches, explain the construction and working principle of a 3 – phase induction motor. (10 Marks)
b. Explain the working principle of synchronous motor. (06 Marks)
c. Explain plugging of a Induction Motor. (04 Marks)

OR

- 6 a. With neat sketches, explain the working principle of an alternator. (10 Marks)
b. Explain the methods of speed control of an Induction motor in brief. (10 Marks)

Module-4

- 7 a. With neat diagram, explain Bulk Oil Circuit Breaker. (10 Marks)
b. Write a note on signalling in underground mines. (06 Marks)
c. Differentiate Flame proof and Intrinsically Safe Apparatus used in mines. (04 Marks)

OR

- 8 a. Draw the single line diagram of power distribution in underground mines and explain in brief. (10 Marks)
b. Explain the various types of Motor enclosures used in mines. (10 Marks)

Module-5

- 9 a. Define the following :
- i) Luminous Intensity ii) MSCP iii) Lumen iv) Illumination
v) Candle power. (10 Marks)
- b. List the standards for mine lighting at various places in mines. (10 Marks)

OR

- 10 a. State and explain Law of Inverse squares and Lambert's Cosine Law in brief. (06 Marks)
- b. Write a note on LED lighting and its advantages. (08 Marks)
- c. What is Glare? How can it be avoided? (06 Marks)

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