USN | | | | | | | | | | 18MN56

Fifth Semester B.E. Degree Examination, July/August 2021
Mine Electrical Engineering

Time: 3 hrs.   Max. Marks: 100

Note: *Answer any FIVE full questions.*

1   a. Describe the scope and importance of electrical engineer in mines.   **(05 Marks)**
    b. With a neat diagram, explain the parts of an electric drive.   **(10 Marks)**
    c. Write a note on choice of electric drive.   **(05 Marks)**

2   a. Explain in detail the Indian electricity rules applicable to mining any ten. **(10 Marks)**
    b. What are the technical advantages of Electric drive?   **(05 Marks)**
    c. Draw the neat sketch of winders in mines.   **(05 Marks)**

3   a. Classify DC motors and explain in brief.   **(10 Marks)**
    b. Explain the types of electric braking of a DC shunt motor.   **(10 Marks)**

4   a. Explain Armature and flux control method of speed control of DC shunt motor. **(10 Marks)**
    b. Derive the Emf equation of a DC Generator.   **(10 Marks)**

5   a. Explain the constructional features of slip ring and squirrel cage Induction motor. **(10 Marks)**
    b. With neat sketch, explain the working principle of an alternator.   **(10 Marks)**

6   a. With their usual notions, derive the EMF equation of an alternations   **(10 Marks)**
    b. Explain the methods speed control of induction motors.   **(10 Marks)**

7   a. Explain the working of Air Blast circuit Breaker with a neat diagram. **(10 Marks)**
    b. Differentiate underground and surface distribution with a single line diagram. **(10 Marks)**

8   a. List and explain types of motor enclosures in mines.   **(10 Marks)**
    b. Explain underground signaling in mines.   **(10 Marks)**

9   a. Define the following terms used in illumination
        i) Reflectance   ii) Light   iii) MHSCP   iv) Glare   v) Lumen.   **(10 Marks)**
    b. Write a note on Illumination design for mines.   **(10 Marks)**

10 a. Discuss LED lighting giving the advantages over other types.   **(10 Marks)**
    b. State and explain the laws of illumination.   **(10 Marks)**

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