

**End Semester /Reappear (Semester IV) Examination May 2025**

**Programme: Diploma (MiE)**

**Full Marks: 70**

**Course: Mining Machinery I**

**Time: 3 Hrs.**

**Course Code: 8D.251**

**Enrolment no. \_\_\_\_\_**

**Section I**

**1. Short Answer type questions. Answer any four.**

**4 x 5 = 20**

- Explain the term “super elevation “and provide the formulas for truck and road, including a diagram.
- Describe the direct rope haulage. Write its advantages and disadvantages.
- Write down about care and maintenance of steel wire ropes.
- Discuss the mass and strength of wire ropes what are factors on which its strength depends?
- Identify the key components found in a drum winding system.
- Explain in brief about the stranded ropes.

**Section II**

**Long Answer type questions. Answer any three.**

**3 x 10 = 30**

- Differentiate Coned socket type capel & Interlocking wedge type capel.
- Describe the all types of safety devices in underground haulage system with neat and clean diagram.
- What are the purpose of winding system? Compare drum winding winding and friction winding system.
- Classify the wire ropes on the basis of operation and construction.
- Describe the considering the selection of wire ropes. Write the ropes used for different purpose.

**Section III**

**Application based questions. Answer any one.**

**1 x 20 = 20**

- Provide a detailed explanation of the classification, construction, and selection criteria for wire ropes used in mining. Also, describe the types of deterioration and capping methods, supporting the answer with appropriate diagrams where necessary.
- Provide a brief description of the safety appliances installed in a winding system. Additionally, illustrate and explain the suspension gear arrangement used for a winder.
- Illustrate and explain the various types of rope haulage systems utilized in underground mining.

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