

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

**Programme: Diploma (MiE)**

**Course: Surface Mining**

**Course Code: 8D.301**

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

**Full Marks: 70**

**Time: 3 Hrs.**

**Section I**

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

**4 x 5 = 20**

- Classify the excavating equipment's of opencast mining method.
- Differentiate between Safety fuse and detonating cord.
- Briefly discuss about secondary blasting and its type why it is required?
- Determine the Output per Man-Shift (OMS) for an underground coal mine employing 1,200 workers with a daily production of 2,400 tonnes.
- Draw the all types of electric detonator showing its important parts.
- How do misfires occur in the surface mining?

**Section II**

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

**3 x 10 = 30**

- Describe the classification of surface mining based on the level of mechanization. List at the examples of machines used.
- Differentiate between Electric shovel and diesel shovel.
- What is a non-electric initiation system? Explain Raydets, NONEL, and shock tubes with diagrams if needed.
- Discuss the blasting pattern used in opencast mine along with its suitable condition.
- Discuss the permitted explosive and Emulsion explosive in details with composition name.

**Section III**

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

**1 x 20 = 20**

- List the key factors influencing equipment selection for the opencast mining method. Additionally, describe the components of a shovel used in mining operations.
- Discuss the various factors affecting selection of opencast mining method. What are the advantages and disadvantages of opencast mining?
- Briefly explain the SMS, ANFO & SME used in opencast blasting? Write its properties and composition.

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