PRACTICE SET
End Semester Examination, Spring- 2026

Program: DIPLOMA (MINING)
Semester: IV
Subject: SURFACE MINING
Subject Code: 8DPCCMiE208

UNIT-I

Section B (10 marks)

1. A mine has a total of 2,000,000 tons of waste and 500,000 tons of ore. Calculate the Overall Stripping Ratio. What does this value indicate about the mine?"

2. Define the following types of stripping ratios and explain their significance in surface mining operations:

a) Overall Stripping Ratio
b) Break-Even Stripping Ratio
c) Maximum Allowable Stripping Ratio

3. List any four advantages and four disadvantages of opencast mining. Also, define the following parts of a mining bench: height, width, angle of slope, toe, and crest.

4. In a opencast mine 200 worker are employed in a shift. Average daily production of the mine is 7500 tons coal and 18000m3 of overburden. The density of coal is 1.5 and the stripping ratio of the mine is 3.5m3/tone .Calculate the OMS of the mine.

5. Explain box cut. Define external box cut and internal box cut. With diagram

6. Explain the different types of surface mining methods with suitable examples.

7. Describe the classification of surface mining based on the level of mechanization. Give examples of machines used.

8. Write short notes on bench design in opencast mining according to CMR2017 regulation Reg. no 105 & 106.

Section C (20 marks)

9. Discuss the various factors affecting selection of opencast mining method. What are the advantages and disadvantages of opencast mining?

UNIT II

Section B (10 marks)

10. Differentiate between hydraulic shovel and Rope shovel in brief.
11. Discuss the factors to be considered while selecting an excavator.
12. Explain the operating parameters of shovel used in opencast mining.
13. What are the factors which are considered for selecting the transportation equipment in opencast mines?

14. Differentiate between Electric shovel and diesel shovel.
15. Describe the Bucket Wheel Excavator with neat and clean diagram.

Section C (20 marks)

16. Enumerate the factors that affect the equipment selection for opencast method. Explain parts of shovel.
17. What is a surface miner? Explain method of working Based on mode of travel. With diagram.

UNIT III

Section B (10 marks)

18. Define the explosive. Discuss the composition and properties of explosive in detail.
19. Discuss the permitted explosive and Emulsion explosive in details with composition name.
20. What is ANFO? Explain its composition, properties, and applications in opencast mining.
21. Discuss in details the slurry explosive and its common ingredients.
22. What is a non-electric initiation system? Explain Raydets, NONEL, and shock tubes with diagrams if needed.
23. Explain the Precaution which must be taken while Mixing ANFO & SME Handling and uses.

Section C (20 marks)

24. Briefly explain the SMS, ANFO & SME used in opencast blasting? Write its properties and composition.
25. Describe the different initiation systems for blasting operation used in mines?

UNIT IV

Section B (10 marks)

26. State the steps to be taken while blasting.
27. How do misfires occur in the surface mining? Write the probable reasons of it.
28. Describe the problems generate due to blasting in opencast mine.
29. Discuss the blasting pattern used in opencast mine along with its suitable condition.
30. Define with suitable sketch (a) Spacing (b) Burden (c) Sub Grade Drilling (d) Stemming height (e) column charge

Section C (20 marks)

31. What are the factors to be considered while designing a blast pattern in opencast mines?
32. What precautions should be taken while charging and firing of holes in deep hole blasting?

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