PRACTICE SET

End Semester Examination, Spring- 2026

Program: DIPLOMA
Semester: VI
Subject: FUEL TECHNOLOGY & MINERAL PROCESSING
Subject Code: 8D.352

UNIT I

Section II (10 marks)

1. Explain the objectives of mine sampling and Explain the important terms used in sampling and discuss its purpose and various uses in mining.
2. What is salting? Mention any two methods used in salting and state why it is done. How can salting be prevented?
3. Explain the objectives of mine sampling and How does sampling help in decision-making during mining operations?
4. What is channel sampling? Explain its procedure, advantages, and limitations in detail
5. Describe the different types of sampling methods used in mines. Explain any four methods with suitable diagram.

Section III (20 marks)

6. Coal is of two grades Coking & Non coking Coal. Can you differentiate between coking and non-coking coal. Give the grading of coking & non coking coal as notified by Government of India.

UNIT II

Section II (10 marks)

7. Describe different methods of ore reserve estimation. Explain cross-section method, polygon method, or triangular method of ore reserve estimation.
8. Explain the relationship between assay data and ore reserve estimation. How do errors in assaying affect reserve calculations?
9. Define assaying. Explain its importance in mining and describe the concept of an assay map with neat sketch.
10. Find the average grade of gold ore when ore are in vertical section in stope. The grade & length is as follows:

GRADE (gm/te)	124	159	113	109	131
Length (m)	9.2	13.6	22	19	11.4

11. Find the grade of iron ore of an underground metal mining in which ore is graded by triangular method. Thickness of hole and grade of iron is given below:

Thickness (mm)	Grade (gm/tonne)
45	38
43	56
41	59

Section III (20 marks)

12. Find the average grade of copper ore by constant distance weight method. Distance and the grade of the copper is given below of the stope.

Distance (m)	Grade (gm/tonnes)
6	32
12.7	55
17	32
13	35
7.5	37
5	46
17.2	76

13. The In a copper underground metal mine, ore grades have been sampled at different distances from the center of a stope. The data is given below:

Distance(m)	Grade (gm/tonne)
22.4	47
18.0	68
11.6	59
12.4	54
17.5	52
24	58
37.3	83

Using the Inverse Distance Weighting method**,** calculate the weighted average grade of the ore in the stope.

UNIT III

Section II (10 marks)

14. Enlist the stages involved in mineral processing.
15. Give a detailed description of Jaw Crusher. Also with a neat sketch, explain its working.

16. Illustrate about grinding. Differentiate between Rod Mill and Ball Mill.
17. Draw a neat sketch of gyratory crush. Explain its working.
18. Is there any difference between gyratory crusher and jaw crusher? Explain
19. What is froth flotation method? Discuss in details with diagram
20. Define mineral dressing. Explain its scope, objectives, and limitations in mining and mineral processing.
21. Explain size separation in mineral dressing. Describe different methods such as screening and classification with their applications

Section III (20 marks)

22. The mineral processing is required for every mineral. Give the detailed idea of unit operations which are involved in mineral processing in details with sketch.

UNIT IV

Section II (10 marks)

23. Explain the drift and in situ theories of origin of coal.
24. Illustrate the banded constituents of rocks. Discuss their quality. Explain caking index of coal.
25. Define carbonization of coal. Discuss the processes of carbonization of coal.
26. Differentiate between high temperature and low temperature carbonization.
27. Can you explain the laboratory method for proximate analysis of coal?
28. What is ultimate analysis of coal? Explain the determination of carbon, hydrogen, oxygen, nitrogen, and sulfur and its significance.

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