PRACTICE SET
End Semester Examination, Spring- 2026

Program: BTECH (MINING)
Semester: VI
Subject: MINING MACHINERY II
Subject Code: 8PCCMiE306

Course Outcome:
On the completion of the Course, the students will be able to:

Course Outcomes	Description
CO1	Learn the basic concept of mine machinery for selecting the suitable machines and solving the excavating, loading & transportation problems in mine.
CO2	Explain the designing the open pit and layout of the haulage system and construction of bunker for storage of coal.
CO3	Understand the knowledge on winding system &choosing of appropriate conveying system and its control in the mine.
CO4	Apply the knowledge of construction &installation of aerial ropeway and man ridding system and its statutory provision.

UNIT I
SECTION B (10 marks)

1. Compare and justify the use of hydraulic shovel vs rope shovel for deep vs shallow opencast mines. (Analyze) CO1
2. Enlist the factors which affecting the selection of HEMM. CO1 (Understand)
3. Describe the components of Ripper with a neat sketch. CO1 (Understand)
4. Explain the uses, applicability, advantages and disadvantages of rope shovel. .CO1 (Understand)
5. Shovel is most operated machine in mines. Discuss the operating parameters of shovel in details. (Apply)
6. Differentiate between wheel loaders and shovels in terms of mobility, productivity, and operational flexibility. (Analyze) CO1

SECTION C (20 marks)

7. Dragline is crucial machine for opencast for overburden removal. Classify the Dragline used in opencast. List the main components of dragline and discuss about briefly with a neat labelled diagram. CO1 (Apply)
8. Assess the environmental impact of using heavy surface machinery and suggest sustainable operational practices. CO1 (Analyze)

UNIT II

Section II (10 marks)

9. Describe about the traverser circuit with a brief sketch.CO2 (understand)
10. Analyze the working principles and applications of continuous miners and road headers in underground development.CO2 (Analyze)
11. Analyze the constructional features of rotary and percussive drills and how they affect drilling performance. CO2 (Analyze)
12. Enumerate the criteria to be considered while designing pit bottom layout. CO2 (Apply)
13. Explain what factors that decide the design of pit top and pit bottom layout? CO2 (Understand)
14. A longwall face shows reduced productivity. Assess whether a shearer or plough system is more suitable and justify your decision. CO2(Evaluate)

Section III (20 marks)

15. Describe the constructional features and applications of shearers, and continuous miner used in underground coal mining. Compare their suitability for different seam conditions and production requirements. (Apply) CO2

UNIT III

SECTION B (10 marks)

16. Discuss in details about all three trackless transport vehicles used in underground mines. CO 3 (Understand)
17. Describe in detail the basic parameters of belt conveyor system. Write down the advantages and design of belt conveyor. CO3 (Understand)
18. Differentiate Armoured chain conveyor & Scraper chain conveyor. CO3 (Remember)
19. Explain Belt conveyor used in opencast mining. Write down the various merit and demerit of belt conveyor systems over truck haulage system. CO3 (Understand)
20. Classify different types of conveyors and evaluate their suitability for underground vs surface mining conditions.CO3(Analyze)
21. Compare belt conveyors with chain conveyors in terms of efficiency, maintenance, and operational limitations. CO3 (analyze)

SECTION C (20 marks)

22. In a conveyor belt drive the tension on the tight side is double that on the slack side. If the value of coefficient of friction is 0.3, find the angle of lap required if the belt is not to slip on its driving drum. CO3 (Evaluate)
23. SDL is used underground for transport. Can you explain in your own words about the Side discharge loader and load & haul loader with its suitability condition for installation in mine. CO3 (apply)

UNIT IV

Section B (10 marks)

24. Do you know about man ridding used in mines? Explain about the man riding system and what are the safety features involved in it? CO4 (Apply)
25. What are the advantages and disadvantages of Man riding system and its applicable conditions? CO4 (Understand)
26. Assume there is a mine at a hilly area then which method of transportation you will choose for material & men and explain the reason(s). Also discuss advantages & disadvantages of Aerial ropeway. CO4 (Apply)
27. Analyze the importance of statutory provisions in the design and operation of man-riding systems. How do they ensure worker safety? CO4 (Analyze)

Section C (20 marks)

28. Explain the various types of conveyors used in trackless transport systems in underground mining. Discuss their sequence control mechanisms with suitable diagrams. CO 4 (apply)

Summary Sheet

CO Wise

CO	Q. No	Marks
CO1	1,2,3,4,5,6,7,8	100
CO2	9,10,11,12,13,14,15	80
CO3	16,17,18,19,20,21,22,23	100
CO4	24,25,26,27,28	60
Total		**340**

Unit Wise

Unit	Q. No	Marks
Unit 1	1,2,3,4,5,6,7,8	100
Unit 2	9,10,11,12,13,14,15	80
Unit 3	16,17,18,19,20,21,22,23	100
Unit 4	24,25,26,27,28	60
Total		**340**

Blooms Taxonomy Level (BTL) Wise

BTL	Q. No	Marks
LOT	2,3,4,9,13,16,17,19,18,24,25	110
HOT	1,5,6,7,8,10,11,12,14,15,20,21,22,23,26,27,28	230
Total		**340**

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Disclaimer: -This is a practice set. The Question in End term examination will differ from the practice set. This practice set is meant for practice only.