

Programme: B. Tech (MiE)

Course: Surface Mining

Course Code:8PCCMiE302

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

Full Marks: 70

Time: 3 Hrs.

Q.No.	Questions	CO	Bloom Taxonomy Category	Marks
<b>Section I</b>				
1	<b>Short Answer type questions.</b>			
a	Contrast stripping ratio & break even stripping ratio. The sale value of an ore from an open pit mine is Rs.6000 per tonne cost of mining, excluding stripping cost, is Rs.2250 per tonne. If the cost of stripping is Rs.1000 per meter cube the breakeven stripping ratio in meter cube/tonne.Calculate.	CO1	Evaluate	<b>4 x 5 = 20</b>
	or			
b	Differentiate between internal & external box cut with sketch.	CO1	Evaluate	
	or			
c	Classify the excavating equipment of opencast mining method.	CO2	Understand	
	or			
d	Define and classify HEMM.	CO2	Remember	
	or			
e	Write a brief note on Berm and parapet wall.	CO3	Understand	
	or			
f	Discuss about haul road in opencast mines.	CO3	Understand	
	or			
g	Enlist the factors affecting selection of Transport System.	CO4	Understand	
	or			
	Write down the various merit and demerit of belt conveyor systems over truck haulage system.	CO4	Understand	
<b>Section II</b>				
	<b>Long Answer type questions.</b>			
1	Enumerate the condition for selection of opencast mining method.	CO1	Understand	<b>3 x 10 = 30</b>
	or			
2	Define box cut method with diagrams. What are the types of box cut? Enlist the factors on which site of box cut depends.	CO1	Understand	
	or			
3	Discuss about the bucket wheel excavator with its schematic line diagram.	CO3	Apply	
	or			
4	Discuss the applicability condition required for using Surface miner and its parts.	CO3	Understand	
	or			
5	A belt conveyor transports material with an average cross-sectional area of 0.09 m <sup>2</sup> and a bulk density of 1.5 tonne/m <sup>3</sup> , moving at a speed of 2 m/s. Calculate the carrying capacity of the conveyor in tonnes per hour.	CO4	Evaluate	
	or			
	Illustrate high angle belt conveyor system of transporting. What are its advantages?	CO4	Understand	
<b>Section III</b>				
	<b>Application based questions</b>			
1	List the key factors that influence the selection of equipment for the opencast mining method. Additionally, analyze whether there is a difference between rope shovels and hydraulic shovels, and if so, explain their distinctions."	CO2	Analyze	<b>1 x 20 = 20</b>
	or			
	Categorize the different types of draglines utilized in opencast mining and provide a detailed explanation of the three primary types used in mining operations.	CO2	Analyze	

**COURSE OUTCOME**

- CO1 Understand the basic concept of surface mining for understanding the applicability & slope stability problem in any opencast mine.
- CO2 Understand the application and operation of shovel, dragline, dozer and other opencast machinery.
- CO3 Understand the application, operation and limitation of bucket wheel excavator and surface transport system.
- CO4 Explain the applicability of the different in-pit crushing and conveying methods& interpretation of slope stability.