

End Semester/Reappear (Semester VII) Examination December, 2024

Programme: B.Tech (MiE)

Course: Mining Machinery II

Course Code: 8PCCMiE403

Enrolment no. _____

Full Marks: 70

Time: 3 Hrs.

Q.No.	Questions	CO	Bloom Taxonomy Category	Marks
Section I				
1	Short Answer type questions.			
a	Enlist the demerits of Dragline.	CO1	Understand	4 x 5 = 20
	or			
b	Summarize short notes on:- i. Bucket Fill factor ii. Cycle Time	CO1	Understand	
	or			
c	Sketch and explain about the turntable circuit.	CO2	Analyze	
	or			
d	Write short note on coal bunker used in mines.	CO2	Remember	
	or			
e	Enumerate safety features of belt conveyor.	CO3	Understand	
	or			
f	Enlist the care of belt conveyor required during use in mines.	CO3	Apply	
	or			
g	Classify the aerial ropeway system of transport.	CO4	Understand	
	or			
	Enumerate the safety features used in Man riding transport system.	CO4	Understand	
Section II				
Long Answer type questions. Answer any three.				
2	Differentiate between Rope shovel & hydraulic shovel with proper sketch.	CO1	Understand	3 x 10 = 30
	or			
3	Describe the components of Ripper with a neat sketch.	CO1	Understand	
	or			
4	Differentiate between Roader Header & Dint Header.	CO2	Apply	
	or			
5	Enumerate the criteria to be considered while designing pit bottom layout.	CO2	Apply	
	or			
6	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	
	or			
	What are the advantages and disadvantages of Man riding system and its applicable conditions?	CO4	Understand	
Section III				
Application based questions. Answer any one.				
5	A bucket wheel excavator with 20 buckets of capacity 0.5 m ³ each, rotates at 5 rev/min. The bucket fill factor is 80%. The excavator loads on to 1200 mm wide belt conveyor. The cross-section area (m ²) of the material on the belt is 0.1 B ² , where B is the belt width in m. The minimum speed of the belt in m/s to avoid spillage of the material will be how much.	CO3	Evaluate	1 x 20 = 20
	or			
	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	

Course Outcome:

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

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 riding system and its statutory provision.