JHARKHAND Rai University
RANCHI

End Semester/Reappear (Semester VIII) Examination May 2025

Programme: B. Tech (MiE)
Course: Fuel Technology & Mineral Processing **Full Marks: 70**
Course Code:8PCCMiE408 **Time: 3 Hrs.**
Enrolment no. _____

Q.No.	Questions	CO	Bloom Taxonomy Category	Marks
	Section I			
1	**Short Answer type questions.**			**4 x 5 = 20**
a	Compare the proved, inferred and indicated reserves of coal.	CO1	Understand	
	or			
	Brief the methods of analysis of coal.	CO1	Understand	
b	Brief about Blake, dodge and universal crusher with diagram.	CO2	Understand	
	or			
	Give a proper definition of Mineral Processing or Ore Dressing.	CO2	Understand	
c	What is jigging? Enumerate the various types of jig.	CO3	Remember	
	or			
	Coin the term dewatering. Why is it necessary?	CO3	Understand	
d	Determine the grade of copper ore in an underground metal mine where ore grading is done using the triangular method. Assume uniform hole thickness and given copper grades of 145 gm/tonne, 162 gm/tonne, and 130 gm/tonne.	CO4	Evaluate	
	or			
	State the triangular method of determination of average grade of ore for bore hole of same diameter & different diameter.	CO4	Understand	
	Section II			
	Long Answer type questions.			**3 x 10 = 30**
2	Illustrate about grinding. Differentiate between Rod Mill and Ball Mill.	CO2	Understand	
	or			
	Is there any difference between gyratory crusher and jaw crusher? Explain	CO2	Understand	
3	Explain the concept behind the magnetic separation. Name the mineral ore for which magnetic separation is done.	CO3	Understand	
	or			
	Sizing is a unit operation of mineral processing. Explain in details the sizing method. Also discuss various type of screening method.	CO3	Apply	
4	Explain the both methods of determination of average grade of ore by polygon method with formula.	CO4	Apply	
	or			
	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) 35 | 41 38 | 67 44 | 48	CO4	Evaluate	
	Section III			
	Application based questions			
	Compare the characteristics of coking and non-coking coal, highlighting their differences. Additionally, outline the official grading system for both types of coal as notified by the Government of India.	CO1	Create	
	or			

5	Coin the term Coke. Differentiate hard coke & soft coke. Compare the various gases produced as by product among in your own words: a. Coal gas b. Producer gas c. Water gas	CO1	Apply	**1 x 20 = 20**

COURSE OUTCOME

CO1 Apply knowledge of mineral dressing for understanding, formulating and solving problems related with mineral dressing.
CO2 Acquire knowledge and hands-on competence in applying the concepts in the design and development of machines for separating the low grade ore economically.
CO3 Design & understand the various methods for mineral beneficiation.
CO4 Demonstrate the knowledge on leaching and laboratory sampling process.