

Q. No.	Questions	CO	Bloom Taxonomy Category	Marks
<b>Section I</b>				
1	<b>Short Answer type questions.</b>			<b>4 x 5 = 20</b>
a	Give a detailed description about RMR. How is RMR calculated? or	CO1	Remember	
	State about Rock Quality Designation? Discuss the strength characteristics that are derived from RQD index.	CO1	Understand	
b	Elucidate the mechanically anchored Rock bolts. or	CO2	Understand	
	Explain Stiff Pillar approach for the pillar designing.	CO2	Understand	
c	Discuss the grouted rock bolts and its applicability in underground mines. or	CO3	Understand	
	Give your views about the damages that occur due to ground subsidence.	CO3	Understand	
d	Draw the diagram of subsidence profile and show all the related elements with proper labelled diagram. or	CO4	Remember	
	Local and main fall are concerned with subsidence so what do you think about such types of strata fall.	CO4	Understand	
<b>Section II</b>				
	<b>Long Answer type questions.</b>			<b>3 x 10 = 30</b>
2	Define the term Critical Minerals describe them and also give the locations of these in India. or	CO2	Remember	
	Discuss the different types of slope failure with their mechanism failure.	CO2	Analyze	
3	Describe the significance of stowing and backfilling in underground mining technology, highlighting their essential roles in ensuring stability and efficient resource extraction. or	CO3	Understand	
	Prepare the mechanism developed for the guniting and shotcrete.	CO3	Create	
4	Describe the phenomenon of subsidence, providing a detailed explanation and a clear distinction between critical, subcritical, and supercritical subsidence. or	CO4	Understand	
	Discuss the factors influencing ground subsidence and describe the resulting damages, supplemented with a clear and well-illustrated diagram.	CO4	Understand	
<b>Section III</b>				
	<b>Application based questions</b>			<b>1 x 20 = 20</b>
5	If tasked with constructing a tunnel through various rock types, how would you evaluate their characteristics, and how would this assessment aid in selecting and designing appropriate support systems? Provide your answer based on your own assumptions. or	CO1	Apply	
	Describe the Coal Mine Roof Rating (CMRR) and explain its mechanism, incorporating a suitable diagram. Highlight the key parameters necessary for calculating CMRR, using updated data for reference.	CO1	Apply	

**COURSE OUTCOME**

CO1 Sketch of strata control for understanding, formulating and solving strata control problem in any underground mine.

CO2 Analyze and solve strata movement problems.

CO3 Acquire knowledge and hands-on competence in applying the concepts in the development of strata control.

CO4 Describe subsidence &amp; develop in depth knowledge of monitoring prediction &amp; control.