Name:
Enrolment No:

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2018

Course: METHODS OF SUB-SURFACE MINING **Course code: MIEG 321** **Semester: V**
Programme: B.TECH. IN MINING ENGG. (Indian) **Time: 03 hrs.**
Max. Marks: 100
Instructions: Answers must be brief and to the point.

SECTION A: 20 MARKS

S. No.	Statement of the Questions	Marks	CO
Q1. a)	Classify the various methods for accessing the deposits.	[4]	CO1
b)	Summarize the CMRs in a working shafts.	[4]	CO1
c)	What are the advantages and disadvantages of a double unit Longwall face?	[4]	CO2
d)	Differentiate between Longwall Advancing and Longwall Retreating methods.	[4]	CO2
e)	What are the conditions for Hydraulic stowing?	[4]	CO6
	SECTION B: 40 MARKS		
Q2. a)	Draw and explain the pit-top layout with a cage and tub combination.	[5]	CO1
b)	What are the factors on which size of pillars will depend?	[5]	CO3
Q3. a)	Explain the controlling factors for a Longwall face will depend.	[6+4]	CO4
b)	Identify the various elements of a Longwall face?		
Q4. a)	Describe the favourable conditions for Depillaring with stowing.	[7+3]	CO6
b)	Differentiate between Hydraulic and Mechanical stowing.		
Q5. a)	Discuss the working factors for coal face mechanization.	[6+4]	CO5
b)	State the CMRs for the withdrawal of supports.		
	OR		
Q6. a)	What are the areas of a mine where Support rules are to be implemented as per CMR?	[4+6]	CO5
b)	Show with a diagram, the characteristics graph of a power support.		
	SECTION-C: : 40 MARKS		
Q7. a)	Write the CMRs for Mine shelter in Underground mines.	[4]	CO3
b)	Discuss the CMRs for Strata Control and its Monitoring plan.		
c)	Explain with sketches various steel props and roof-bolts used in coal mines.	[8+8]	CO5
Q8. a)	Explain based on AFC-DERDS combination, using different sketches, the coal extraction for a Longwall Advancing face. Assume any other conditions.	[10]	CO4
b)	Discuss the pressure arch theory for a narrow roadway in underground.	[10]	CO5
	OR		
Q9. a)	Explain based on AFC-DERDS combination, using different sketches, the coal extraction for a Longwall Retreating face. Assume any other conditions.	[10]	CO4
b)	Discuss the Modern theory for strata behavior in a Longwall working.	[10]	CO5

Name: Enrolment No:	UPES

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SECTION A: 20 MARKS

S. No.	Statement of the Questions	Marks	CO
Q1. a)	Write FOUR factors for location of shaft/incline.	[4]	CO1
b)	Write the CMRs where two shafts/inclines are not required or exempted.	[4]	CO1
c)	Enumerate are the advantages of Longwall Retreating face?	[4]	CO2
d)	What are the conditions of Solid Blasting?	[4]	CO3
e)	Illustrate the conditions for Mechanical stowing.	[4]	CO6
	SECTION B: 40 MARKS		
Q2. a) b)	Design the pit-top layout with a Conveyor transport. What are the factors on which size of district will depend?	[7] [3]	CO1 CO3
Q3. a) b)	Explain the factors on which layout of a Longwall face will depend. What are the various elements of a Longwall face?	[6+4]	CO4
Q4. a) b)	What are the conditions for Hydraulic stowing? Discuss the flow of material and the process in Hydraulic stowing.	[4+6]	CO6
Q5. a) b)	Which conditions are favorable for coal face mechanization. What is Local fall?	[8+2]	CO5
	OR		
Q6. a) b)	How the roof testing is performed? What are rigid and flexible props?	[4+6]	CO5
	SECTION-C: : 40 MARKS		
Q7. a) b) c)	Using neat sketches, design coal extraction from L/W with DERDS-AFC operation. Enumerate the general qualities of any support in U/G coal mining. Discuss various roof bolts used in coal mines.	[10] [5+5]	CO4 CO5
Q8. a) b)	Summarize the CMRs for Depillaring and contiguous working. Explain the pressure arch theory for a narrow roadway in underground.	[10] [10]	CO3 CO5
	OR		
Q9. a) b)	Explain with different sketches, the depillaring operation for a thin seam coal mine. Assume any other conditions. Discuss the Modern strata theory for a Longwall working with sketches.	[10] [10]	CO3 CO5