Name: **Enrolment No:**	UPES

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2019

Course: Underground Coal Mining — **Semester:** VI
Program: B.Tech. in Mining Engineering — **Time:** 03 hrs.
Course Code: MIEG 324 — **Max. Marks:** 100
Instructions: As specified for each sections

SECTION A (Answer ALL)

S. No.		Marks	CO
Q1.	List FIVE problems of Thick Seam Mining.	5	CO1
Q2.	State the suitable conditions for Wongawilli method.	5	CO2
Q3.	Define conditions for which Diesel Locomotives cannot be used in U/G coal Mine.	5	CO3
Q4.	Outline ANY FIVE effects of Sand and Gravel Mining	5	CO6
	SECTION B (Answer questions 5, 6, 7 and either 8 or 9)		
Q5.	a) What are the system requirements in Blasting Gallery method? b) What is the drilling and blasting system specification for Blasting Gallery method?	4+6	CO1
Q6.	a) What are the characteristics of Wide Stall method of working? b) Explain the support system used in Wide Stall method of working.	5+5	CO2
Q7.	a) List the measures to be taken to care for Conveyor Belt. b) State the Advantages and Disadvantages of Scraper Chain Conveyor.	7+3	CO4
Q8.	a) Discuss on the parameters in connection with the roof bolting system in mines. b) Calculate the FOS of the support system from the following information: Roof bolts are installed at 1.2m x 1m mesh, Span of the gallery - 4.2m, Strength of each bolt - 6 ton, Row spacing – 1.2m, Number of bolt in a row – 3, RMR of seam – 50, Mean Rock density – 2.25.	5+5	CO5
	OR		
Q9.	a) Differentiate between Dust Plan and Sampling Plan as per CMR for Mine Safety. b) State the new methods for recognising Dangerous Occurrences of CH_4 in gassy mines.	5+5	CO5

SECTION-C (Answer 10 and either 11 or 12)			
Q10.	a) Describe Tractive force in relation to Locomotive Haulage. b) State the precautions to be taken to minimize the air blast. c) List the common causes of accidents due to Rope Haulage.	**5** **8+7**	**CO3** **CO5**
Q11.	a) State the Roof heightening process in Depillaring. b) Illustrate the process of coal transportation system in Hydraulic Mining. c) Discuss FIVE Extraction methods and Reclamation plan for Sand and Gravel Mining.	**5+5+10**	**CO1** **CO2** **CO6**
	OR		
Q12.	a) State Goaf line Velocity and its importance. b) Demonstrate the theoretical composition of Pack in Shortwall Mining. c) Discuss the general approach to Sustainable Sand and Gravel Mining.	**5+5+10**	**CO1** **CO2** **CO6**

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SECTION A (Attempt ALL)

S. No.		Marks	CO
Q1. a)	State the Advantages of Blasting Gallery technique.	5	CO1
b)	Explain the Coal Transportation process in Hydraulic Mining.	5	CO2
c)	Outline the suitable conditions for Locomotive Haulage.	5	CO3
d)	List ANY FIVE effects of the Sand and Gravel mining.	5	CO6
	SECTION B (Answer questions 2, 3, 4 and either 5 or 6)		
Q2. a) b)	Identify suitable conditions for Wongawilli method. Draw a layout and explain the face operation in Wongawilli method.	4+6	CO1
Q3. a) b)	Discuss the roof heightening process in depillaring district. State the Statutes applicable on heightening and splitting of pillars with galleries in depillaring district.	5+5	CO2
Q4. a) b)	State the CMRs on Locomotive Haulage. Discuss the various components of a Locomotive haulage.	4+6	CO3
Q5.	Summarize the CMRs on roadway conveyors.	10	CO4
	OR		
Q6. a) b)	Discuss various components of a Belt Conveyor. Define Loop Take-up and Pull-cord system in relation to Belt Conveyor.	6+4	CO4
	SECTION-C (Answer 7 and either 8 or 9)		
Q7. a) b) c)	Explain the measures considered for the installation of the Belt Conveyor. Classify the Accidents. Analyze the common causes of Accidents due to Rope Haulages in U/G mine.	8 4+8	CO4 CO5
Q8. a) b)	Enumerate the causes of Accident due to Explosives. Discuss the In-Stream Mining management plan for Sand and Gravel Mining.	10 10	CO5 CO6
	OR		
Q9. a) b)	Discuss on the Long Term and Short Term control measures in connection with anticipated Explosion in mines. List the Sustainable Mining Environmental Conditions for Sand mining.	10 10	CO5 CO6