



**UNIVERSITY OF PETROLEUM
AND ENERGY STUDIES**

End Semester Examination – May, 2018

Program/course: B.TECH/ MINING ENGG
Subject: METHODS OF SURFACE MINING
Code : MIEG 221
No. of page/s: 03

Semester – IV
Max. Marks : 100
Duration : 3 Hrs

Instructions:

- a. Answers must carry the supporting material such as equations and diagrams, wherever necessary
- b. Section-A is compulsory
- c. In section-B, attempt any 4
- d. Section C is compulsory

Section A

20Marks.

1.
 - i) Discuss the special arrangements made for Hot Holes (5 marks)
 - ii) List down the effective parameters for designing transporting system (5 marks)
 - iii) Establish the relationship between rolling resistance & production efficiency of mine? (5 marks)
 - iv) Discuss the contents of functional & geometric design considerations of haul road. (5 marks)

Section B

40 Marks

2. Differentiate between severity index & frequency rate. With given set of information, find out the frequency rate of accident-----
A mine employing 500 persons and there was 2 fatal, 3 reportable and 5 minor injury was reported in a year? (10 marks)
3. Why hot holes are considered as serious & suggest suitable techniques to handle the same (10 marks)
4. Each question carries 02 mark (02*5=10 marks)
 - a) What should be the ideal relation between haul road & machinery?

- b) What nomenclature of dragline signifies?
 - c) Examine the conditions required for shovel-truck-crusher-belt conveyor transportation system
 - d) Monitor & liquidated wells are not directly related to production then why they are in use?
5. Discuss the necessity of various zones in haul road
6. There is a stratified deposit containing coal. The only horizon containing coal is 7 mtrs thick & density of coal is $2.7t/cm^3$. Above & below this horizon, 2 more layers of rock are there, each having thickness of 20 mtrs, having density $2.97t/cm^3$ & $1.37t/cm^3$ respectively. Find out the minimum area to be exposed in order to expose coal?

Section C

40 Marks

Each question carries 20 Marks

7. There exists a Limestone deposit at the mountain top. There is a cement plant at a distance of 100 kms. The gradient of the proposed pit is quite high. The Limestone is hard & compact in nature. Suggest
- 1) Suitable excavation/ mining method with due justification
 - 2) Effective transportation system
8. Discuss the causes of slope failure in surface mine. Understanding the concept of limiting equilibrium, deduce the formula for calculating FoS of bench

Or

Amongst the excavators available, suggest the best suited one with respect to Indian Mining Industry with valid reasons

Roll No: -----