B.E.(with Credits)-Regular-Semester 2012 - Mining Engineering Sem VI

MN605 - Surface Mining

P. Pages : 2 **GUG/W/16/5402**

Time : Three Hours * 3 5 6 8 * Max. Marks : 80

Notes : 1. Due credit will be given to neatness and adequate dimensions.
2. Assume suitable data wherever necessary.
3. Illustrate your answers wherever necessary with the help of neat sketches.
4. Marks are indicated to right margin.

1. Illustrate with suitable cross-section sketches showing ore and waste components, how overall stripping ratios can be; (a) Constant (b) Increasing and (c) Decreasing over the life of an open-pit mine. **16**
What is meant by "break-even stripping ratio" and what factors would you consider when you need to determine its value?

OR

2. Sketch and describe any one system of opening of deposit to be mined by surface mining method. **16**
Discuss at length various design considerations and maintenance aspects of haul roads in surface mines.

3. A 20 m thick lignite bed is to be mined out for a annual capacity of 10.5 million tonnes with an average stripping ratio of 5.2 m^3 per tonne. Assuming rests of the conditions, select suitable equipment system, estimate and tabulate the configuration and fleet size of machineries required. **16**

OR

4. Discuss at length various Transport systems (continuous and cyclic excavation & transport systems) in respect of suitability conditions, components, combination and the degree to which they may be successfully applied and used in each type of surface mining method. **16**
Estimate drill machine fleet size required for preparation of a overburden bench. The conditions are; B X S: 4 X 7, overburden per month 4,40,000 m^3, working hrs per shift-6, shifts per day-2, drilling days per week-5, rate of drilling per hour-20m.

5. State and briefly explain global scenario, resources, industrial and domestic applications in India, and uses of generated waste with reference to Dimensional Stones. Also discuss with neat sketches a marble stone mining technology using wire/chain saw cutting technique along with its advantages and disadvantages. **16**

OR

6. Compare fundamental aspects as they pertain to development and subsequent extraction of bedded type and vein type formation. **16**

7. Describe in brief selection and design guidelines in case of in-pit crushing and conveying system. **16**
Discuss at length various material characteristics affecting selection of an in-pit crushing and conveying system.

OR

8. Discuss various problems associated with surface mining of developed coal seam. **16**
State and discuss different precautionary measures to be observed during surface mining of fiery coal seam.

9. What is Reclamation? **16**
State necessity of reclamation.
List out various methods of reclamation.
Explain the method of reclamation using bucket wheel excavator system.

OR

10. With the help of neat sketches, discuss in brief below listed methods of dumping waste materials: **16**

a) End Dumping
b) Push Dumping
c) Free or Plug Dumping and
d) Dragline spoiling

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