

B.E. (MIN) Part-III 6th Semester Examination, 2010

Opencast Machinery
(MN-605)

3 hours

Full Marks : 70

Use separate answerscript for each half.

FIRST HALF

(Answer Q.No.1 and any TWO from the rest)

What are unit operations in an opencast mine?

How equipment selection in an opencast mine is done based on excavation constraints and mine site characteristics? **!6+7|**

State the equipment classifications in an opencast mining system?

Explain with a neat sketch the crowd mechanism of a rope shovel.

What is the power transmission system for large rope shovels? **|S+4+2|**

Describe different salient parts of a hydraulic shovel.

What is wristing action of a hydraulic shovel? **[9+2]**

Explain with figures the power transmission of a dragline.

What is balancing diagram of a dragline?

Write the factors on which the stability of a dragline will depend. **[8+i+2]**

Discuss and explain with neat sketches the walking mechanism of a dragline.

Write a comparative statement indicating four distinguishing features of a rope shovel and hydraulic shovel. **|7+4|**

SECOND HALF

(Answer O.No.6 and any TWO from the rest)

What is the working principle of a Continuous Surface Miner?

State the principle of working of high angle conveyor.

What is multi module conveying of high angle conveyor? **|6+4+3|**

(MN-605)

7. a) Write an expression for minimum tipping load of FEL. How it is used for machine design?
b) Explain with a figure the basic operation of a payloader.
c) State how automatic tracking using GPS overcomes the defects of LPS.
d) What are the different types of dozer? |2+4+3+2|
8. With a neat sketch describe bi-cable ropeway. What are the conditions for using ropeway? Distinguish it from mono-cable ropeway. [7+i+3]
9. What are the main components of a dumper? Compare the different drive systems of a dumper. [5+6]
10. a) Write down the conditions of applicability of Bucket Wheel Excavator.
b) With a schematic diagram state the main units and operation of a Bucket Wheel Excavator. [2+9]