

QUESTION 1

As a Manager of an opencast mine you are faced with the following challenge:-

- The 2-seam coal was previously mined via underground bord and pillar mining method;
- The remaining pillars are currently being exposed from surface using a dragline.

Briefly describe a safe and practical manner you will follow to drill and blast the pillars which are “HOT”?

[30]

QUESTION 2

As Section Manager you are tasked to manage a CM production section that is approaching a 10m thick dyke associated with 5m burnt coal on both sides of the dyke as well as a 5m graben that extends over 50 metres.

Discuss how you will manage the mining through of this area under the following headings:-

- | | | |
|-----|----------------------------------|-----|
| 2.1 | Roof Support; | (4) |
| 2.2 | Environmental Control; | (4) |
| 2.3 | Cutting and blasting cycle; | (4) |
| 2.4 | Muck removal; | (4) |
| 2.5 | Manning and Production capacity. | (4) |

[20]

QUESTION 3

The mine you are working on has multiple seams. The numbers 1 and 4 seams have been mined extensively. Due to marketing demand pressures, you are presented with a challenge of mining the virgin number 2 seam simultaneous to the other seams. Several combinations of mining multiple seams have been tried.

List the potential safety hazards associated with various combinations of multi-seam mining sequences and extraction methods.

[24]

QUESTION 4

The term “Load shedding” has been used extensively in the recent past. As a Mine Manager, what are the typical measures you can introduce / put in place on your mine to lower the electricity consumption?

[6]

QUESTION 5

Describe the method of concrete lining a shaft while sinking is in progress (i.e. lining concurrently with sinking operation).

[20]

TOTAL MARKS: [100]