

**B.E. Mining Engineering Sixth Semester**  
**MN 603 - Underground Coal Mining**

Time : Three Hours



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 in right margin.

- |    |  |   |
|----|--|---|
| 1. | a) Classify U/G "Coal MINING METHOD".  | 5 |
|    | b) Explain the factors affecting size of coal pillar.  | 5 |
|    | c) Calculate the size of B+P panel to produce 600TPD of coal from a 6 m thick seam lying at a depth of 115m, of incubation period is 10 month. Assume your own suitable data of not given. | 6 |

**OR**

- |           |   |                                  |
|-----------|---|----------------------------------|
| <b>2.</b> | <p>a) Explain the concept of deciding horizon of development.</p> <p>b) Calculate the no of faces and no of heading, with which you well go for development of 5 m thick seam lying at depth of 115 m to produce 600 TPD of coal. Assume suitable own data &amp; conditions of not given.</p> | <p><b>6</b></p> <p><b>10</b></p> |
| <b>3.</b> | <p>a) What is depillaring. Explain slicing method of depillaring.</p> <p>b) Frame a systematic support rule for a depillaring panel where SDL is to be used as loading m/c.</p>   | <p><b>6</b></p> <p><b>10</b></p> |

**OR**

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|----|----|---|----|
| 4. | a) | Sketch and label various lines of extraction.   | 6  |
|    | b) | Enlist preparatory arrangements made before depillaring.  | 5  |
|    | c) | Explain method of depillaring with continuous miner.  | 5  |
| 5. | a) | Classify L/W mining system.   | 6  |
|    | b) | Describe mechanized L/W mining method to produce 5000 TPD of coal under following geominig conditions | 10 |
|    |    | Seam thickness - 3.2 m.   |    |
|    |    | Depth of Cover - 240 m.   |    |
|    |    | Gradient - 1 m 15   |    |
|    |    | Roof - Good competent and regular caving type.  |    |
|    |    | Floor - Form  |    |
|    |    | Gassiuess - Dy - I  |    |
|    |    | Give details of equipment required for production and man power required.                             |    |

**OR**

6. a) Explain method of L/W face extraction. 8  
b) Explain the supporting of conventional L/W face. 8
7. a) Explain the criteria for defusing a "thick coal seam". 6  
b) Explain blasting Gallery method for mining a 10 m thick coal seam with case study. 10

**OR**

8. a) Explain pre requisit conditions for the success of sub level caving method. 6  
b) Explain cutting mechanism of water jet wrt hydraulic mining system. 6  
c) Enlist the problems of thick seam mining. 4
9. a) Explain method of extraction below surface structure with "SAFETY. PILLAR" 6  
b) Explain horizon mining method with case study. 10

**OR**

10. a) Explain "Wide stall mining method". 10  
b) Enlist precautions to be observed while working in "Contiguous Manner". 6

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