

B.E.-Mining Engineering Sem VI  
**MN602 - Mine Rescue Engineering**

P. Pages : 2

Time : Three Hours



**GUG/S/18/5399**

Max. Marks : 80

- Notes :
1. Due credit will be given to neatness and adequate dimensions.
  2. Assume suitable data wherever necessary.
  3. Diagrams and Chemical equation should be given wherever necessary.
  4. Illustrate your answers wherever necessary with the help of neat sketches.
  5. Marks are indicated against each question.

1. a) Explain various stages of spontaneous combustion. 6
- b) Describe construction of five stopping in gassy mines with neat sketch. 10

**OR**

2. a) Explain various five indices used in mines for early detection of spontaneous combustion. 10
- b) Explain "Pressure Balancing Chamber". 6
3. a) Explain mechanism of coal dust explosion with its characteristics. 8
- b) Explain "Le Chatelier principle" with suitable example. 8

**OR**

4. Explain in brief.
- i) Limits of Inflammability. 4
  - ii) Backlash & direct blast. 4
  - iii) Water barrier. 4
  - iv) Triggered Barrier. 4
5. a) Discuss in detail measures to be adopted at mines to prevent the danger of Inundation. 8
- b) Describe various pattern of boreholes used while approaching old water logged workings. 8

**OR**

6. Write short notes on.
- i) Safety boring apparatus. 6
  - ii) Arched water dam. 6
  - iii) Water barrier. 4

7. a) Explain. 8
- i) Closed circuit Apparatus.
- ii) Open circuit Apparatus.
- iii) Long duration Apparatus.
- iv) filter Apparatus.
- b) Explain construction and working of oxygen self rescuer. 8

**OR**

8. a) State different methods of Reopening sealed off area and explain any one method known to you with its applicability conditions. 10
- b) Explain "Fresh Air Base". 6
9. a) Give the standards of Lighting in Underground mines. 4
- b) Describe a layout of self service type cap lamp room accommodating 2000 No. of cap lamps. 8
- c) Explain "Silicosis". 4

**OR**

10. a) Discuss effect of illumination on Health, safety and productivity of miner. 5
- b) Describe in detail various measures to be adopted in mines to control mine dust. 5
- c) Give a list of various instruments with their principle used for dust sampling in mines. Explain construction & working of any one known to you. 6

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