

22376

24225

3 Hours / 70 Marks

Seat No.

--	--	--	--	--	--	--	--

- Instructions :**
- (1) All Questions are *compulsory*.
 - (2) Answer each next main Question on a new page.
 - (3) Illustrate your answers with neat sketches wherever necessary.
 - (4) Figures to the right indicate full marks.
 - (5) Assume suitable data, if necessary.
 - (6) Use of Non-programmable Electronic Pocket Calculator is permissible.
 - (7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any FIVE of the following :

10

- (a) Enlist different types of barriers to tackle coal dust explosion.
- (b) Define Lux and Lumen.
- (c) Define Resuscitation. Enlist any two methods of Resuscitation.
- (d) State the classification of fires with examples.
- (e) Explain stages of spontaneous combustion of coal.
- (f) Define Graham's ratio. State its uses in sampling of mine atmosphere.
- (g) State qualities of stone dust required for stone dust barrier.

2. Attempt any THREE of the following :

12

- (a) Explain Cowards diagram and state its significance.
- (b) State the methods of sampling from behind the fire stopping and explain any one.
- (c) Explain different types of fittings in permanent stopping.



- (d) Define fire extinguisher and enlist the places where portable fire extinguisher are being kept in mine.

3. Attempt any THREE of the following : 12

- (a) Explain the factors on which inflammability of a coal dust depends.
- (b) Justify the causes of fire damp explosion.
- (c) State four methods of Re-opening. Explain at what condition these methods are being used.
- (d) Compare fire damp explosion with coal dust explosion.
- (e) State the factors to be considered before selecting the method of re-opening.

4. Attempt any THREE of the following : 12

- (a) Draw a neat sketch of Burnside Safety Boring Apparatus and explain how it is used in approaching old waterlogged area.
- (b) Explain the principle of self contained breathing apparatus and describe the construction of BG-174.
- (c) State the general arrangement of lighting in surface and below ground mines at suitable places.
- (d) Explain the working of an electric cap lamp.

5. Attempt any TWO of the following : 12

- (a) With a neat sketch, explain the working of CO₂ extinguisher.
- (b) Explain stage method of re-opening of a sealed off area stating the condition in which this method is used.
- (c) Describe the causes and preventive measures of underground and surface fire.

6. Attempt any TWO of the following : 12

- (a) Define FAB. Draw a layout of FAB with labelling and explain persons and material equipped in FAB.
 - (b) Define Stone Dust Barrier. Explain the construction of water barrier and state its advantages over stone dust.
 - (c) Classify Rescue Apparatus.
-