

Scheme - I

Sample Question Paper

Program Name: Mining and Mine Surveying/Mine Engineering/Mining Engineering.

Program Code : MS/MZ/MN

Year : Second

22252

Subject Title : Mine Ventilation

Marks : 70

Time: 3 Hours

Instructions:

1. All Questions are Compulsory.

Unit	Marks as per Curriculum	Max Marks [1.5 x Clo.- (2)]	Que- 1	Que- 2	Que- 3	Que- 4	Que- 5	Que- 6	Total Marks in a paper set	Remarks
I	8	12	6					4	10	
II	8	12	4	12					16	
III	12	18	-		12		6		18	
IV	16	24	--		6	12			18	
V	16	24	2	6		6	6	4	24	
VI	10	15	2				6	12	20	
Total:-	70	105	14	18	18	18	18	20	106	

2. Answer each Main Question on a new page.

3. Figures to the right indicate full marks.

4. Mobile Phone or any other Electronic Communication devices are not permissible in Examination Hall.

Q.1 Attempt any FIVE of the following:

(10 Marks)

- a) Define Degree of gassiness of a mine.
- b) Enlist safety devices used in Flame safety lamp.
- c) Define Natural ventilation & water gauge.
- d) Define different damps found in mine air.
- e) Write formula for Equivalent orifice of a mine.
- f) Define quantity survey?
- g) Name the instrument and formula for measuring relative humidity of air.

Q.2 Attempt any TWO of the following:

(12 Marks)

- a) Determine how to calculate the cooling power by using Kata Thermometer?
- b) State the standards of ventilation?
- c) Explain Auxillary ventilation and its advantages.

Q.3 Attempt any TWO of the following:

(12 Marks)

- a) Calculate the w.g. developed and the quantity delivered by a backward bladed centrifugal fan having the following specifications-
Fan dia 3.6m RPM 300
width at periphery 1.5m Blade angle 40°
velocity of flow 4.5m/sec Air density 1.2 kg/m^3
- b) State the factors causing NVP. What are its limitations?
- c) Compare axial flow fan with centrifugal fan.

Q.4 Attempt any TWO of the following:

(12 Marks)

- a) State the fan laws and also state the laws of air friction in mines.
- b) Compare forcing fan with exhaust fan.
- c) Explain splitting with neat sketch.

Q.5 Attempt any TWO of the following:

(12 Marks)

- a) State the purpose and dangers associated with booster fan.
- b) Draw and explain ascensional and descensional ventilation in mines.
- c) State the importance of ventilation survey? Describe survey interval and location of survey stations.

Q.6 Attempt any THREE of the following:

(12 Marks)

- a) Draw neat sketch of air crossing and regulator. Explain its working.
- b) Draw neat sketches of Conventions signs and symbols in ventilation plan with color codes (any four).
- c) Determine the velocity of air by using Vane anemometer at coal face?
- d) Measure the air pressure using Inclined manometer at venation station .
- e) Measure the percentage of methane using MSA Methanometer at face of coal mine .

Scheme - I

Sample Question Paper for PROGRESSIVE TEST

Program Name : Mining and Mine Surveying/Mine Engineering/Mining Engineering.

Program Code : MS/MZ/MN

Year : Second

Subject Title : Mine Ventilation

Marks: 20

22252

Time: 1 Hours

Q.1 Define the following terms (Any THREE):

(06 Marks)

- a) Define natural ventilation
- b) Define water gauge
- c) Physiological effects of white damp
- d) Write formula for relative humidity
- e) Define degree of gassiness of a mine

Q.2 Attempt any TWO of the following:

(08 Marks)

- a) What are standards of ventilation.
- b) How will you determine cooling power by Kata thermometer.
- c) Calculate the w.g. developed and the quantity delivered by a backward bladed centrifugal fan having the following specifications-
Fan dia 3.6m RPM 300
width at periphery 1.5m Blade angle 40°
velocity of flow 4.5m/sec Air density 1.2 kg/m^3
- d) What are effects of seasonal changes on direction of natural ventilation?

Q.3 Attempt any ONE of the following:

(06Marks)

- a) Explain MSA Metahnometer with a neat sketch.
- b) What are sources of heat and humidity in a mine

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