



C20-MNG-403

7462

BOARD DIPLOMA EXAMINATION, (C-20)
OCTOBER/NOVEMBER—2023

DMNG – FOURTH SEMESTER EXAMINATION

MINE ENVIRONMENTAL ENGINEERING

Time : 3 Hours]

[Total Marks : 80

PART—A

3×10=30

- Instructions :** (1) Answer **all** questions.
(2) Each question carries **three** marks.
(3) Answers should be brief and straight to the point and shall not exceed five simple sentences.

1. State any three purposes of ventilation.
2. Define the term down cast shaft with sketch.
3. List any three conditions suitable for natural ventilation.
4. Classify the centrifugal fans basing on the direction of bent of blades.
5. State any three laws of mine air friction.
6. State any three preventive measures of leakage of air in a mine.
7. List any three conditions requiring auxiliary ventilation system.
8. State any three objectives of pressure survey.
9. Determine the term kata factor.
10. List any three reasons for changes in the composition of air while passing through mine workings.

- Instructions :** (1) Answer **all** questions.
(2) Each question carries **eight** marks.
(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

11. (a) Explain the principle of air screw fan with a sketch.

(OR)

(b) Describe briefly about manometric efficiency, mechanical efficiency and overall efficiency of mine fan and formula for each of them.

12. (a) Explain the construction, location and field of application of ventilation devices.

(OR)

(b) Explain the splitting of air with merits and demerits.

13. (a) Explain the different methods arranging auxiliary ventilation systems.

(OR)

(b) Explain the location of auxiliary fans.

14. (a) Explain the different methods of quantity survey.

(OR)

(b) Sketch and explain the instruments required for qualitative survey.

15. (a) State the occurrence, physical, chemical and physiological effects of noxious and inflammable gases.

(OR)

(b) Explain the wire gauge principle of flame safety lamp.

PART—C

10×1=10

- Instructions :** (1) Answer the following question.
(2) The question carries **ten** marks.
(3) Answer should be comprehensive and the criterion for valuation is the content but not the length of the answer.

16. Three splits are in parallel the roadways have same type of surface.

Their sizes and lengths are : 2.5 m × 1.5 m; 350 m

2.5 m × 2.5 m; 500 m

3 m × 2 m; 200 m

Calculate the quantity of air which would flow in each, if the total quantity of air is 300 m³/min.

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