



C20-MNG-505

7665

BOARD DIPLOMA EXAMINATION, (C-20)

OCTOBER / NOVEMBER—2023

DMNG – FIFTH SEMESTER EXAMINATION

ROCK MECHANICS AND STRATA CONTROL

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 the areas of applications of rock mechanics in mining.
2. Define the terms (a) principle stress and (b) stress field.
3. List the strength indices of rocks.
4. List the factors considered for estimation of RMR.
5. State the effect of water on rocks.
6. List the instruments used for measurement of strain.
7. List the factors effecting subsidence.
8. Define the terms (a) angle of draw and (b) neutral line.
9. List the various materials used for supporting in mines.
10. Classify the types of supporting systems in underground mines.

- 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 hydrostatic and lithostatic states of rock.

(OR)

(b) Explain stress concentration around mine workings.

12. (a) Explain about the compressive strength and tensile strength of rocks.

(OR)

(b) Explain about the porosity, permeability and anisotropy of rocks.

13. (a) Explain the concept of coal bumps and rock bursts.

(OR)

(b) State the causes and preventive measures of rock bursts and coal bumps.

14. (a) Explain the strata pressure in and around bord and pillar workings.

(OR)

(b) Explain the method of subsidence measurement

15. (a) Explain the method of forepoling and state its applicability.

(OR)

(b) Explain the system of roof bolting by stating its principles.

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.** Explain about the Pressure Arch Theory by explaining different zones with a suitable sketch showing different imaginary arches.

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