21I701 (Pages: 2) Name: .....

Reg.No: .....

SEVENTH SEMESTER M.Sc. INTEGRATED GEOLOGY DEGREE EXAMINATION, NOV. 2024

(CBCSS)

(Regular/Supplementary/Improvement)

CC20 GLO7 IB12 - ADVANCED CRYSTALLOGRAPHY AND MINERALOGY

(Geology)

(2020 Admission onwards)

Time : Three Hours Maximum : 80 Marks

Credit : 4

(Draw neat sketches, wherever necessary)

Section A

I. Answer in one or two sentences. Answer any ***ten*** questions. Each question carries 2 marks.

1. Motifs and lattices.
2. Rotational symmetry.
3. Cubic point groups.
4. Causes of Interference phenomena.
5. Optic normal interference figure.
6. Classify the following minerals in to biaxial poistive and negative: Enstatite, hornblende, sillimanite, muscovite.
7. Platinum.
8. Pyrargyrite.
9. Chromite.
10. Ankerite.
11. Orthoclase.
12. Mineralogy of oceanic lithosphere.

(10 × 2 = 20 Marks)

Section B

II. Write short notes on any ***five*** of the following. Each question carries 8 marks.

13. Discuss the various types of symmetry elements (rotation axes, mirror planes, inversion centers) that define point groups.
14. Determination of angle of extinction using petrological microscope.
15. Determining the sign of elongation.

16. Draw a neat diagram of AAS and explain its working principle.

17. Different components of TEM.

18. Classification of minerals on the basis of chemistry.

19. Elastic and brittle mica groups.

(5 × 8 = 40 Marks)

Section C

III. Write long essay on any ***two*** of the following. Each question carries 10 marks.

20. How can stereographic projections be used to determine the orientation of crystal planes and directions? Illustrate with an example.

21. Write an essay on uniaxial and biaxial indicatrix.

22. Various processes of radioactivity and its effect on mineral structure.

23. Explain amphibole group of minerals along with its structure and paragenesis.

(2 × 10 = 20 Marks)

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