

**Parvatibai Chowgule College of Arts and Science
Autonomous**

B.Sc. Semester End Examination, January 2022

Semester : III

Subject : Geology

Course Title: Advanced Mineralogy and Geochemistry (Core)

Duration : 02 hours

Maximum Marks: 45

Instructions:

1. All questions are compulsory.
2. figures to the right indicate maximum marks
3. Every main question must begin on a new page
4. Draw neat-labelled diagrams wherever essential.

QI Answer **ANY THREE** from the following: **(09)**

- a. Why do micas show one set of cleavage?
- b. Why is there no quartz structure for nepheline?
- c. Explain why is Uranium and incompatible element.
- d. How are trace elements classified based on ionic radius and valency?

QII. Answer **ANY TWO** from the following: **(12)**

- p. Why is unit silicate structure for Olivine SiO_4 whereas for Silica it is SiO_2 ?
- q. Relate the number of cleavages in pyroxene with its structure.
- r. Discuss the polymorphs and isomorphs forms of feldspathoids.

QIII. Answer **ANY TWO** from the following: **(12)**

- m. Explain the Europium anomaly.
- n. Classify amphiboles based on their elemental abundances.
- o. Classify feldspars associated with basaltic magmas.

QIV Answer **ANY ONE** from the following: **(12)**

- A. With respect to the system Albite-Anorthite;
- a. Draw and explain the phase diagram. **(06)**
 - b. Why is it called solid-solution series? **(03)**
 - c. Mention its petrological significance **(03)**

OR

- B. With respect to the system Diopside-Anorthite;
- p. Draw and explain the crystallisation trend of the system. **(06)**
 - q. Mention the significance of lowest and highest temperatures within the system. **(03)**
 - r. Explain the petrological significance of the system. **(03)**
