

Roll No. : .....

Total No. of Questions : 10 ]

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# **BPF-2212**

**M.Sc. (Final) Examination, 2022**

**GEOLOGY**

Paper - V

**(Igneous and Metamorphic Petrology)**

*Time : 3 Hours ]*

*[ Maximum Marks : 75*

**Section-A**

**(Marks : 2 × 10 = 20)**

**Note :-** Answer all *ten* questions (Answer limit **50** words). Each question carries **2** marks.

**Section-B**

**(Marks : 5 × 5 = 25)**

**Note :-** Answer all *five* questions. Each question has internal choice (Answer limit **200** words). Each question carries **5** marks.

**Section-C**

**(Marks : 10 × 3 = 30)**

**Note :-** Answer any *three* questions out of four (Answer limit **500** words). Each question carries **10** marks.

**Section-A**

1. (i) What is Ropy Lava ?
- (ii) What is gravity settling ?
- (iii) I-type and S-type gravities.

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- (iv) Mineral composition of granodiorite.
- (v) Marker diagram.
- (vi) Index minerals.
- (vii) Stress and anti-stress minerals.
- (viii) Anatexis.
- (ix) Principles of XRD.
- (x) Cataclastic structures.

**Section–B**

2. Describe magma types and their classification.

*Or*

Write a detailed note on Origin of Magma.

3. Describe crystallisation process of Diopside-Anorthite-Albite system and write its petrographic significance.

*Or*

Describe petrography, mode of occurrences and petrogenesis of granite and granodiorite plutonic association.

4. (a) Describe petrographic provinces of India.  
(b) Phase rule.

*Or*

- (a) Ophiolite and pegmatites.  
(b) Tholeitic and alkali olivine basalt.

5. Describe the principles and geological application and working of AAS (Atomic Absorption Spectrophotometer.)

*Or*

Describe paired metamorphic belts in detail.

6. Describe ACF, AKF and AFM diagram in detail and its significance.

*Or*

Describe retrograde metamorphism in detail.

### **Section–C**

7. Describe petrography, geological occurrences, facies and petrogenesis of granulites of India.
8. Describe ocean floor metamorphism and its significance in detail.
9. Explain the metamorphism of calcareous rocks.
10. What is metamorphic facies ? Explain and give the mineral assemblages of metamorphic facies.