

G-2/221/21

Roll No.....

## M.Sc. II Semester Examination, 2021

### GEOLOGY

#### Paper I

(Igneous and Metamorphic Petrology)

Time : 3 Hours ]

[Maximum Marks : 80

**Note :** *All questions are compulsory. Question Paper comprises of 3 sections. **Section A** is objective type/multiple choice questions with no internal choice. **Section B** is short answer type with internal choice. **Section C** is long answer type with internal choice.*

#### SECTION 'A'

##### (Objective Type Questions)

Choose the correct answer :

1 × 10 = 10

1. The rock showing typical pillow structure is :

- (a) Granite                      (b) Pegmatite  
(c) Gabbro                      (d) Spilite

2. A rock consisting of entirely glassy matter is :

- (a) Holocrystalline              (b) Holohyaline  
(c) Panidiomorphic              (d) Granite

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3. The ultrabasic monominerallic rocks composed mainly of olivine are called :

- (a) Gabbro                      (b) Syenite  
(c) Drinite                      (d) Pegmatite

4. This is not the mechanism of magmatic differentiation :

- (a) Liquid immiscibility  
(b) Fractional crystallisation  
(c) Filter poersing  
(d) Diagenesis

5. The granite which is derived from igneous protolith is called :

- (a) S-type granite              (b) I-type granite  
(c) Pegmatite                      (d) Aplitic granite

6. A group of igneous rocks characterized by abundant biotite, amphibole, pyroxene or olivine and showing panidiomorphic texture is :

- (a) Basalt                      (b) Lamprophyre  
(c) Carbonatite                      (d) Gabbro

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7. Metamorphism occurring as a result of mechanical deformation along fault planes is called :

- (a) Load metamorphism
- (b) Contact metamorphism
- (c) Cataclastic metamorphism
- (d) Metasomatism

8. Metasomatic change taking place due to confined action of water and boron is called :

- (a) Kaoklinization      (b) Greivenisation
- (c) Tourmatinazation      (d) Dolomitization

9. In the impure calcareous rocks containing impurity of silica, the product of metamorphism at high temperature contains following mineral :

- (a) Muscovite      (b) Biotite
- (c) Wollastonite      (d) Garnet

10. Khondalite contains following minerals :

- (a) Felspar-Quartz-Garnet-Sillimanite-Graphite
- (b) Muscovite-Biotite-Hornblende-Quartz
- (c) Hypersthene-Quartz-Falsper
- (d) Calcite-Quartz-Sillimanite Graphite

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**SECTION 'B'**  
**(Short Answer Type Questions)**

**5 × 4 = 20**

**Note :** Answer the following questions in 250 words.

Unit I

1. Write a note on petrographic province.

Or

Explain binary eutectic crystallisation using on example.

Unit II

2. Write a note on magmatic assimilation. How does assimilation contribute to diversity of igneous rocks ?

Or

Discuss in brief magmatism in relation to various plate tectonic settings.

Unit III

3. Give petrographic description of basalt.

Or

Write down petrographic characteristics of granite.

Unit IV

4. Write a note on various agents of metamorphism.

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Or

Discuss the concept of metamorphic facies in brief.

Unit IV

5. Write the petrographic description of charnockite and Eclogite.

Or

What are paired metamorphic belts ? What is their significance ?

**SECTION 'C'** **10 × 5 = 50**  
**(Long Answer Type Questions)**

**Note :** Answer the following questions in 500 words.

Unit I

1. Describe various forms of igneous rocks along with sketches.

Or

Describe various structures of igneous rocks along with sketches.

Unit II

2. Write an essay on magmatic differentiation.

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Or

Describe various schemes of classification of igneous rocks.

Unit III

3. Describe the petrography, petrogenesis and Indian occurrences of alkaline rocks.

Or

Describe petrography, petrogenesis and Indian occurrences of ultramorphic rocks.

Unit IV

4. Describe textures of metamorphic rocks.

Or

Describe classification of metamorphic rocks.

Unit V

5. Describe the thermal metamorphism of pelitic rocks.

Or

Describe the regional and thermal metamorphism of mafic rocks.

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