

Total number of printed pages-4

1 (Sem-2) GLG

2025

GEOLOGY

Paper : GLG0200104

(Rocks and Rock-forming Minerals)

Full Marks : 45

Time : 2 hours

The figures in the margin indicate full marks for the questions.

1. Choose the correct option : $1 \times 5 = 5$
- (a) Prism faces crystals are also called as
- (i) Prismatic
 - (ii) Pyramid
 - (iii) Tabular
 - (iv) All of the above
- (b) Which one of the following is considered as monomineralic rock ?
- (i) Dolerite
 - (ii) Granodiorite
 - (iii) Dunite
 - (iv) Peridotite

- (c) A conglomerate in which the clasts are of varied lithology is termed as
- (i) Oligomictic conglomerate
 - (ii) Paraconglomerate
 - (iii) Polymictic conglomerate
 - (iv) Orthoconglomerate
- (d) Which of the following rocks indicates highest grade of metamorphism?
- (i) Phyllite
 - (ii) Slate
 - (iii) Gneiss
 - (iv) Schist
- (e) Metamorphism is a
- (i) Isothermal process
 - (ii) Isobaric process
 - (iii) Isochemical process
 - (iv) Adiabatic process

2. Write very short answer on **any five** of the following : 2×5=10

- (a) What is Hardness? Why is its importance for mineral identification?
- (b) What are the piezoelectric and pyroelectric minerals?
- (c) What is magma?

- (d) What is the difference between dyke and sills?
- (e) Write down the difference between slate and phyllite.
- (f) What are the physical factors that control metamorphism of a rock?
- (g) What happens when atmospheric oxygen reacts with iron-rich minerals?
- (h) What is the meaning of the term 'lamination' in sedimentology?
- (i) Give *two* examples of primary sedimentary structures.
- (j) What are the different types of magma?

3. Answer **any four** of the following :

5×4=20

- (a) What is extinction? How is it helpful in identification of minerals?
- (b) Write physical and chemical properties of quartz and plagioclase feldspars.
- (c) Write down the Bowen's reaction series.
- (d) Write the petrographic descriptions of granite and gabbro.
- (e) Describe isograd with example.

- (f) What is geotherm and geothermal gradient?
- (g) What are cross-stratifications? Describe the different types of cross stratifications that develop due to unidirectional flow of water.
- (h) What are the salient features of Folk's classification of limestones?

4. Answer **any one** of the following :

10×1=10

- (a) What are mineral identification properties? How are these properties used to physically identify minerals?
- (b) Describe the classification of igneous rocks based on mineralogical and chemical criteria.
- (c) Describe a method of classification of sandstones. Use suitable sketches to explain the classification.
- (d) What is the difference between metamorphism and metasomatism? Briefly describe the sources of metamorphic heat.