



'সমানো মন্ত্র: সমিতি: সমানী'

UNIVERSITY OF NORTH BENGAL

B.Sc. Honours 3rd Semester Examination, 2023

CC5-GEOLOGY

IGNEOUS PETROLOGY

Time Allotted: 2 Hours

Full Marks: 40

The figures in the margin indicate full marks.

1. Write short notes on any **five** of the following: 1×5 = 5
 - (a) Hypidiomorphic texture
 - (b) Norm and Mode of a rock
 - (c) Pa hoe hoe lava
 - (d) Batholith
 - (e) Ultramafic rock
 - (f) Graphic texture
 - (g) Ring dyke
 - (h) Leucocratic rock.

2. Answer any **three** questions from the following: 5×3 = 15
 - (a) In field, you get a dark coloured igneous rock with high specific gravity. By seeing these two properties, what idea can you get about the type of minerals present in the rock, the silica % of the rock and the temperature of the magma that produced this rock? Explain with reason.
 - (b) Briefly explain Viscosity of magma and the factors on which Viscosity of a magma depends.
 - (c) Discuss the crystallisation pattern of the Discontinuous arm of Bowen's Reaction Series.
 - (d) Does cooling rate of magma have any control on the type of minerals being produced from that magma, explain with reason?
 - (e) Briefly explain the process of formation of Pillow basalt and its importance.

3. Answer any **two** questions from the following: 10×2 = 20
 - (a) With help of suitable diagrams, explain the different ways of partial melting to produce magma. 10
 - (b) What is Porphyritic texture? Explain the formation of porphyritic texture using a proper binary phase diagram. 2+8
 - (c) An igneous rock consists of 80% olivine and 20% pyroxene. With help of a suitable binary phase diagram, explain how this mineralogy was formed. Name the rock. What kind of textures can you expect in such a rock? 8+1+1
 - (d) With help of a suitable binary phase diagram, explain the crystallisation pattern of the Continuous arm of Bowen's reaction Series. What special kind of texture can you expect here? 8+2

—x—