



'समानो मन्त्रः समितिः समानी'

**UNIVERSITY OF NORTH BENGAL**

B.Sc. Honours 1st Semester Examination, 2021

**CC2-GEOLOGY**

**MINERAL SCIENCE**

Time Allotted: 2 Hours

Full Marks: 40

*The figures in the margin indicate full marks.*

1. Answer any **five** questions of the following: 1×5 = 5
  - (a) Crystal symmetry
  - (b) Cleavage
  - (c) Miller indices
  - (d) Metallic bonding
  - (e) Uniaxial mineral
  - (f) Pleochroism
  - (g) Pyroelectricity
  - (h) Isomorphism.
  
2. Answer any **three** questions from the following: 5×3 = 15
  - (a) Briefly describe the formation of interference colour when the anisotropic minerals are observed under the petrographical microscope. 5
  - (b) What do you mean by Lustre of minerals? Describe different types of lustre commonly found in minerals and give one mineral example for each type. 1+4
  - (c) Define Birefringence. What is the Becke Line and how is it used to determine the refractive index of minerals under the petrographical microscope? 2+3
  - (d) Write name along with chemical composition of two sulphide minerals and three oxide minerals. 2+3
  - (e) What is Colour and Streak of a mineral? Which is the diagnostic property out of these two and why? What is the difference between cleavage and fracture of a mineral and what are the different types of fractures present? 2+3
  
3. Answer any **two** questions from the following: 10×2 = 20
  - (a) Describe the Crystal Systems with the suitable sketches. Give one example of each crystal system. 7+3
  - (b) State and describe Pauling's rules. 10
  - (c) Describe the silicate atomic structure with the suitable sketches. Give one example of each class. 7+3
  - (d) Define Polymorphism. Describe the different polymorphs of SiO<sub>2</sub> mentioning their temperature of formation. 2+8

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