INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH KOLKATA
Class-Test-2, Autumn 2024

Course: ES2103 – Minerals, rocks, and deformation

Full marks: 12 **Time: 30 minutes** **Date: 13/09/2024**

Name: **Roll no.**

1) Schematically draw the structure for single chain silicates and show the unit cell composition and charge. Give an example of a single chain silicate mineral. Write the name and composition of the two end members of a common single chain silicate mineral. (4)

2) Let $X_3Y_2Si_3O_{12}$ be the general composition of a silicate mineral. (3)

a) Write the silicate class for the above mineral.
b) Write the name of the mineral group.
c) Which cations can fit in the X and Y sites?
d) Write any end-member composition of the mineral group with the above general formula and write its name.

3) If the Si:O ratio in the silicate structure is 2:5, what is the silicate class?
Write the name of a common mineral of this class. What are the most distinguishing physical properties of the minerals belonging to this class? (3)

4) What is the Si:O ratio of a tectosilicate? Write the name and chemical formula of a tectosilicate mineral. (2)