

**Indian Institute of Science Education and Research Kolkata**

**Introduction to Earth Science (ES1101, Autumn 2024)**

**Assignment-1**

**Instructor: Gaurav Shukla**

*Note: You may be requested to submit the part of assignment in the We Learn System. For that, please submit the scanned copy of the worked out (hand-written) assignment. You are free to discuss among yourselves. However, any attempt to copy blindly will result in zero marks for everyone involved. You need to write answers based on your own understanding. Do not simply copy and paste from the internet and books. Any use of AI based software is strictly prohibited.*

1. Based on the discussion for element production, would you expect the life to have been possible during the very first generation of stars after the Big Bang?
2. Discuss the importance of Earth's magnetic field.
3. Briefly explain, why nucleosynthesis (fusion process) stops after iron is produced.
4. Discuss the existence and importance of cleavage planes in minerals.
5. Discuss the bonding nature and polymerization (linking to other silicate tetrahedra) of  $\text{SiO}_4^{-4}$  tetrahedra which would result in different types of silicate minerals.