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5. What are the probable locations of magma generation on the earth? Explain the process of magma generation at the Mid Oceanic Ridges with the help of schematic diagrams.
6. What is a rock cycle? Describe it with a labelled diagram.

PART – II

Answer question no. 1 and *any two* questions from the rest.

1. What is a mineral? Classify silicate minerals based on the polymerization of the silica (SiO_4) tetrahedra. Write with necessary sketches and give examples. $1+9=10$
2. What are the common minerals present in the crust and upper mantle? Classify Feldspar Group of minerals in terms of the chemical system $\text{KAlSi}_3\text{O}_8 - \text{NaAlSi}_3\text{O}_8 - \text{CaAl}_2\text{Si}_2\text{O}_8$ $2+3=5$
3. Classify Pyroxene Group of minerals in terms of the chemical system $\text{CaSiO}_3 - \text{MgSiO}_3 - \text{FeSiO}_3$. How do you identify pyroxene and hematite in hand specimen samples? $3+2=5$
4. “There are some minerals that cause environmental problems and there are some minerals that provide solutions to environmental problems” – Explain with examples. Write with examples about the usefulness of minerals. $2+3=5$

Ex/SC/GEOL/UG/GE/TH/04/2022

B. SC. EXAMINATION, 2022

(PHYSICS / CHEMISTRY / MATHEMATICS / GEOGRAPHY)

(2nd Year, 2nd Semester)

ROCKS AND MINERALS

PAPER – GE/TH/04

Time : Two hours

Full Marks : 40

(Use a separate Answer scripts for each Part)

PART – I

Answer *any four* questions from the following.

All questions carry equal marks. $4 \times 5 = 20$

1. What is double refraction? Illustrate with an example of mineral that shows double refraction in hand specimen with relevant sketches.
2. How will an isotropic crystal section appear if it is placed in-between two polars, where the polarizer vibration directions are kept perpendicular to the each other. Explain with the suitable sketches.
3. What is metamorphism? What are the agents of metamorphism? How do these agents control the metamorphism? Describe it briefly.
4. How does the process of formation of clastic sedimentary rocks differ from that of chemical sedimentary rocks? Comment on the diagenesis and lithification process of clastic sedimentary rocks.

[Turn over