

M.Sc. (Geology) (NEP Pattern) Semester-II  
**PSCGEOT06 - Paper-II - Geochemistry and Instrumentation Techniques**

P. Pages : 2

Time : Three Hours



**GUG/W/24/15392**

Max. Marks : 80

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- Notes : 1. All questions are compulsory and carry equal marks.  
2. Draw neat sketches wherever necessary.

1. Describe in detail geochemical classification of elements.

**OR**

Write short notes on:

- a) Chemical composition and properties of atmosphere.
- b) Geochemical cycle.
- c) Hydrosphere.
- d) Major elements.

2. Describe in detail stable isotope geochemistry of carbon and oxygen.

**OR**

Write short notes on:

- a) Radiogenic isotopes.
- b) Methods of radiogenic dating of whole rock samples.
- c) Geochemistry U in rocks.
- d) Geochemistry Th in rocks.

3. Describe in detail geochemical processes involved in rock weathering and soil formation.

**OR**

Write short notes on the following:

- a) Enthalpy and entropy.
- b) Principles of ionic substitution in minerals.
- c) Mineral stability in Eh-pH diagram.
- d) Laws of thermodynamics.

4. Describe in detail principle and geological application of Cathodoluminescence.

**OR**

Write short notes on the following.

- a) Thermoluminescence.
- b) Spectrophotometry.
- c) Flame photometry.
- d) Atomic absorption spectrophotometry.

5. Write short notes on:

- a) Transition elements
- b) HFSE
- c) Application of Sulphur isotopes in geology
- d) Decay scheme
- e) Fugacity
- f) Raoult's law
- g) EPMA
- h) INAA

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