M.Sc. (Geology) (NEP Pattern) Semester-II

PSCGEOT06 - Paper-III - Geochemistry and Instrumentation Techniques

P. Pages : 2 **GUG/S/25/15392**

Time : Three Hours * 3 0 4 1 * Max. Marks : 80

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

1. Describe the Chemical composition and properties of Lithosphere in details. **16**

OR

Write short notes on-

a) Geochemical cycle. **4**

b) Atmosphere. **4**

c) Principles of geochemistry. **4**

d) Hydrosphere. **4**

2. Describe the basic principles, decay scheme and radiometric dating methods of K-Ar. **16**

OR

Write short notes on-

a) Radiogenic isotopes. **4**

b) Petrogenetic implications of Rb-Sr. **4**

c) Stable isotope geochemistry of oxygen. **4**

d) Geochemistry of U and Th in minerals. **4**

3. Discuss the Laws of thermodynamics in details. **16**

OR

Write short notes on-

a) Gibbs free energy. **4**

b) Entropy. **4**

c) Geochemistry of sedimentary rocks. **4**

d) Mineral stability in Eh-pH diagram. **4**

4. Discuss the Principle and geological application of Spectrophotometry in details. **16**

OR

Write short notes on-

a) Isotope dilution technique. **4**

b) SEM and TEM. **4**

c) Thermoluminescence. **4**

d) ICP-AES. **4**

5. Write short notes on following. **16**

a) HFSE b) REE

c) Rb-Sr d) Carbon Isotope

e) Enthalpy f) Chemical potential

g) INAA h) EPMA

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