

M.Sc. (Geology) (CBCS Pattern) Sem-I  
**PSCGEOT01 - Mineralogy & Crystallography Paper-I**

P. Pages : 1

Time : Three Hours



**GUG/W/22/11162**

Max. Marks : 80

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

1. Explain the method of determination of optic sign of biaxial minerals.

**OR**

Write short notes on:-

- a) Thermogravimetric Analysis (TGA)
- b) Pleochroism
- c) Thermal properties of minerals
- d) Isotropic and anisotropic substances

2. Give a detailed account of general formulae, classification, atomic structure, chemistry and paragenesis of Phosphates group of minerals.

**OR**

Write short notes on:-

- a) Bonding in minerals
- b) Phyllosilicates
- c) Sorosilicates
- d) Isomorphism and solid solution.

3. Describe the Pyroxene Group of minerals giving their general formulae, classification, atomic structure, chemistry and paragenesis.

**OR**

Write short notes on :-

- a) Olivine Group
- b) Plagioclase feldspar Group
- c) Feldspathoid Group
- d) Serpentine Group

4. Give axial and symmetry elements of Zircons class of tetragonal crystal system and describe its forms with Millerian Indices.

**OR**

Write short notes on:-

- a) Axes of symmetry
- b) Axial ratio
- c) Imperfection of crystals
- d) Twinning

5. Write short notes:-

- a) Refractive index
- b) Bragg's equation
- c) Polymorphism
- d) Co-ordination numbers
- e) Chlorite Group
- f) Quartz Group
- g) Centre of symmetry
- h) Solid angle

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