



**ELIZADE UNIVERSITY, ILARA-MOKIN**

**ONDO STATE**

**FACULTY: BASIC AND APPLIED SCIENCES**

**DEPARTMENT: PHYSICAL AND CHEMICAL SCIENCES**

**FIRST SEMESTER EXAMINATIONS**

**2018/2019 ACADEMIC SESSION**

**COURSE CODE: AGY 203**

**COURSE TITLE: CRYSTALLOGRAPHY AND MINERALOGY**

**DURATION: 2 ½ Hours**

**HOD's SIGNATURE**

A rectangular box containing a handwritten signature in black ink. The signature is cursive and appears to read 'C. A. F. Adegoke'.

**TOTAL MARKS: 60**

**INSTRUCTIONS: ANSWER FOUR (4) QUESTIONS IN ALL.**

- (a) Define the following terms as used in crystallography with examples:
- (i) A crystal
  - (ii) Lattice
  - (iii) crystal structure
  - (iv) motif
  - (v) unit cell
- (b) Outline the crystallographic systems.
2. (a) What are minerals and how are they different from other substances?
- (b) Mention ten (10) examples of non-silicate rock-forming minerals.
- (c) Explain six physical properties of minerals which can be used for their identification in hand specimen.
3. Explain
- (a) Center of symmetry with illustrative diagram of a tetrahedron as an example
  - (b) Plane of symmetry, with illustrative diagram of a cube as an example
  - (c) Axis of symmetry with illustrative diagram of a cube as an example
4. (a) Explain the mohs' scale of hardness
- (b) Distinguish between the following pairs:
- (i) feldspars and feldsparoids
  - (ii) inosilicates and phyllosilicates
  - (iii) colour and streak of a mineral
5. (a) What are twinned crystals?
- (b) Describe the following twinned crystals with illustrative diagrams:
- (i) Repeated twin
  - (ii) Penetration twin
  - (iii) Simple twin
  - (iv) Polysynthetic twinning
6. (a) State the law of constancy of angles.
- (b) Discuss the measurement of the interfacial angles using contact goniometer
- (c) What are polymorphs?