



# UNIVERSITY OF MINES AND TECHNOLOGY, TARKWA

SECOND SEMESTER EXAMINATIONS, MAY 2018

**COURSE NO:** GL 170  
**COURSE NAME:** CRYSTALLOGRAPHY AND MINERALOGY  
**CLASS:** GL I **TIME:** 3 HOURS

Name: \_\_\_\_\_ Index Number: \_\_\_\_\_

## ANSWER ANY FIVE (5) QUESTIONS

[Unihubgh.com](http://Unihubgh.com)

1. (a) Discuss the classification of crystals into systems and classes. Identify various systems and classes and the specific criteria of each of these and associate each of them with a mineralogical example **(10 marks)**  
  
(b) Describe twinning in the crystals of the cubic system **(10 marks)**
2. Draw the following crystal habits indicating their Systems, Classes, Miller Form Indices and two Mineralogical examples.
  - i. Octahedron
  - ii. Tetrahedron
  - iii. Pyritohedron
  - iv. Rhombohedron
  - v. Hexagonal prism**(20 marks)**
3. Discuss Isomorphism as exhibited in the following:
  - i. Carbonates
  - ii. Pyroxenes
  - iii. Amphiboles
  - iv. Native Elements
  - v. Feldspars**(20 marks)**
4. (a) Compare and contrast the pyroxene and the amphibole groups of minerals. **(10 marks)**  
(b) Distinguish between

- ii. Cleavage, Parting and Fracture of minerals and
- iii. Colour, Streak and Lustre
- iv. Give mineralogical examples.

**(10 marks)**

5. Give the diagnostic properties of the following minerals

- (a) Calcite
- (b) Quartz
- (c) Microcline
- (d) Pyrite
- (e) Muscovite

**(20 marks)**

6. Discuss the general classification of rock-forming minerals. Identify the structure and the associated physical properties of minerals in the subgroups. Illustrate with mineralogical examples

**(20 marks)**

7. Describe the following crystal aggregates with specific mineral examples:

- i. Oolitic
- ii. Acicular
- iii. Fibrous
- iv. Arborescent
- v. Geode

**(10 marks)**

(b) Discuss Polymorphism, Hemeomorphism and Pseudomorphism as exhibited in some specific minerals.

**(10 marks)**

*Examiners: Daniel Nana Asamoah/Dr Douglas Oti*