

# UNIVERSITY OF FORT HARE

**GLG512**

Mineralogy  
Igneous and Metamorphic Petrology

**Degree Examinations: June 2018**

**Subject: Geology**

**Time: 3 Hours**

**Marks: 100**

**This paper consists of two pages including the cover page**

## **Internal Examiners**

Mr C J Gunter  
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## **External Examiner**

Dr M Demlie

## **INSTRUCTIONS**

Answer two questions from each of Sections A and B. Answers that are not clearly numbered will not be marked.

## **SECTION A**

### **Question One**

Discuss the solid-state energy and wavelength dispersive methods of X-ray microanalysis of the chemical composition of minerals. [25]

### **Question Two**

Rocks with exceptionally high alkali and low silica contents occur in many alkaline provinces. Explain the occurrence, characteristics and origin of alkaline lamprophyre, kimberlite and carbonatite. [25]

### **Question Three**

Certain igneous rocks formed only during the Precambrian and at no other time. Write a review of the special Precambrian igneous associations. [25]

## **SECTION B**

### **Question Four**

Discuss X-ray fluorescence analysis as an analytical technique for determining the chemical compositions of minerals and rocks. [25]

### **Question Five**

Describe and explain the occurrence and mode of formation of mineral and rock textures in the shear zones of metamorphic complexes. [25]

### **Question Six**

The processes, and their validity, of granitization, anatexis and migmatization in metamorphic terranes. [25]

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