UNIVERSITY OF MINES AND TECHNOLOGY, TARKWA

SECOND SEMESTER EXAMINATIONS, MAY 2018

COURSE NO: GL 354
COURSE NAME: **ORE MINERALOGY**
CLASS: GL III **TIME**: 3 HOURS

Name**:** _____Index Number: _____

ANSWER ALL QUESTIONS IN SECTION 'A' AND ANY OTHER (2) TWO QUESTIONS IN SECTION 'B'

SECTION A: COMPULSORY QUESTIONS [Total; 70 marks]

ANSWER ALL QUESTIONS IN THIS SECTION.

Qu. 1. What are the differences between the following minerals?

(i) Yellow minerals: gold, chalcopyrite, pentlandite, pyrite and marcasite

(ii) White minerals; silver, arsenopyrite, stibnite, galena and jamesonite

(iii) Pink to brown minerals, copper, bornite, pyrrhotite, niccolite and ilmenite

(iv) Grey minerals; sphalerite, hematite, chromite, magnetite and tetrahedrite

(v) Blue minerals; covellite, chalcocite, digenite, cuprite and tennantite **[40 marks].**

Qu. 2. Briefly discuss how you would set out to prepare a polish section from an ore sample, investigate it under the ore microscope to identify the ore minerals present and prepare a report on your observations **[30 marks].**

SECTION B: OPTIONAL QUESTIONS [Total; 30 marks]

***Choose and answer any two (2) questions from this section*.**

Each question carries 15 marks

Qu. 3. What do you understand when the lecture notes state that… **"**colour observed in plane polarised light is due to absorption whilst colour observed under cross polars is due to birefringence"?

Qu. 4. Why are reflectance and hardness considered the most important optical properties in reflected light microscopy? What is the Kalb light line? Of what use is it in ore microscopy?

Qu. 5. Discuss the merits and demerits of Qualitative and Quantitative ore microscopy.

***Examiners: D. Aikins** /D.N. Asamoah*