FEDERAL UNIVERSITY OF TECHNOLOGY, OWERRI
SCHOOL OF PHYSICAL SCIENCES
DEPARTMENT OF SCIENCE LABORATORY TECHNOLOGY
RAIN SEMESTER EXAMINATION 2015/2016 SESSION
STG 302: MINERALOGY
INSTRUCTION: ATTEMPT AND FOUR (4) QUESTIONS

SECTION A:

Q1(a) Give diagrammatic classification of the various microscopes commonly used in petrographical work.

(b) Outline the steps and materials necessary for the preparation of a thin section for microscopic analysis.

(c) What are the four basic precautions needed for effective use of a microscope during mineral analysis?

Q2(a) What is "Refractive Index" of a mineral?

(b) Compare and contrast the measurement of refractive index of a mineral by:
(i) Immersion method.
(ii) The simple Refractometer

(c) List four characteristics properties of light as electro-magnetic wave.

SECTION B:

3(a) On what 3 bases can waves be classified. List the classes of each basis.

(b) What are E.M waves? Give 3 examples. Differentiate between E.M waves and mechanical waves.

(c) List five optical properties of mineral.

4(a) What do you understand by the word double refraction?

(b) With the aid of sketches explain the features at play in the production of X-rays.

(c) What is the advantage of X-ray crystallography over chemical test and analysis?

5(a) What is X-ray diffraction, mention the two techniques.

(b) Explain the application of Bragg Law in X-ray crystallography (Use sketches).

(c) How would you use Bragg's Law to determine intra-atomic distance?