

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA  
SCHOOL OF PHYSICAL SCIENCES  
DEPARTMENT OF GEOLOGY

FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BTECH GEOLOGY, 2015/2016  
SESSION

COURSE : GEL511(ADVANCED IGNEOUS AND METAMORPHIC PETROLOGY) UNIT: 2

DATE: 6<sup>th</sup> April, 2016.

TIME ALLOWED: 2 Hours

**INSTRUCTIONS:** Answer two questions from each section. All questions carry equal mark.

**SECTION A – IGNEOUS PETROLOGY**

1. (a) What is magma chamber?  
(b) List and explain any two igneous processes that take place in a magma chamber.
2. Discuss how a pegmatite can form from an originally basic magma.
3. Explain in detail why less evolved rocks are rich in elements like platinum, palladium, nickel and vanadium; while more evolved rocks are rich in lithium, boron, sodium and beryllium.

**SECTION B – METAMORPHIC PETROLOGY**

1. Write on types of metamorphism you know and their controlling factors.
2. Describe briefly the types of metamorphic zones you know indicating the various minerals that characterized each zone.
3. Describe in detail the concept of metamorphic grades and name various minerals involved in each grade.