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

SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BTech GEOLOGY
2017/2018 SESSION

COURSE CODE: GEL 321 **UNIT:** 2

COURSE TITLE: METAMORHIC PETROLOGY

INSTRUCTIONS: ANSWER QUESTION ONE AND ANY TWO OTHERS

TIME ALLOWED: 2 HOURS **DATE:** 12TH APRIL, 2018

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1. (a) Define the following terms as used in metamorphic petrology:
   - i Index mineral
   - ii Isograde
   - iii Metamorphic facies
   - iv Metamorphic zone

   (b) Discuss the Barrovian progressive metamorphism and explain its similarities and differences with the Buchan Series and Grubberman metamorphic zone.

2. (a) Discuss metamorphism as a chemical reaction.
   (b) Explain the limits of metamorphism.

3. (a) With the aid of good diagrams, explain the following metamorphic textures:
   - i Augen
   - ii Idioblastic
   - iii Granoblastic
   - iv Polygonal
   - v Porphyroblastic
   - vi Xenoblastic

   (b) Explain how chemically active fluid, temperature and pressure influence metamorphism.

4. Distinguish between the following pairs of metamorphic rocks:
   - (a) Amphibolite and serpentinite
   - (b) Granofels and hornfels
   - (c) Cataclasite and mylonite
   - (d) Gneiss and schist
   - (e) Phyllite and slate

5. (a) Give a brief account of contact metamorphism of limestone.

   (b) What are the mineral assemblages that characterized the various facies of regional metamorphism?