



CRAWFORD UNIVERSITY, IGBESA,
COLLEGE OF NATURAL AND APPLIED SCIENCES
GEOLOGY AND MINERAL SCIENCES PROGRAMME
2016/2017 HARMATTAN SEMESTER EXAMINATIONS

COURSE TITLE: *IGNEOUS PETROLOGY* COURSE CODE: *GEM 323*

TIME ALLOWED: 3 HOURS

SECTION A

INSTRUCTION: ANSWER ALL QUESTIONS

1. In areas where rocks slide past each other, such as at the base of the-----, or at -----, ----- could be generated by friction
2. ----- is a form of ----- transfer wherein the heat moves with the material
3. In a two-component system, addition of a third component reduces both the----- and the-----temperatures
4. The connection between thermal energy and tectonism is made apparent by the association of----- and----- with----- and-----
5. If an oceanic lithospheric plate subducts beneath another oceanic plate, ----- are formed.
6. The phenomenon whereby magmatism does not appear to be related to converging or diverging plate boundaries is called-----
7. Near trenches along continental margins, a tectonic mélange or mixture of rock types derived from both oceanic and continental plates is- emplaced including slices of dismembered ancient oceanic lithosphere called-----, and high-P-low -P metamorphic rock called-----
8. ----- is the incorporation of matter from wall rocks or physically ingested inclusions into the magma to form a----- or-----
9. The pyroxenes have a general structural formula of----- and can be divided into several groups based on----- and-----
10. Enstatite is----- in thin section while hypersthene is----- and-----
11. ----- is another mineral that has the same type of formula as aegirine (acmite) but with----- completely replaced by-----, thus the formula is-----
12. -----, ----- and----- are the white micas and they represent the----- group.

-30marks

SECTION B

INSTRUCTION: ANSWER QUESTION 1 AND ANY OTHER TWO

1. Classify igneous rocks on the bases of (i) texture (ii) chemistry (iii) color index (iv) mineralogical composition using QAPF diagram
-20marks
2. (a) There are basically three types of layered intrusions, itemize and explain each in detail.
(b) The Precambrian Bushveld complex of South Africa is not only the largest intrusion known, but, in many ways, it is one of the most remarkable bodies of igneous rock on Earth, explain.
-10marks
3. Micas are broadly classified into two groups, namely di-octahedral and tri-octahedral. (i) Identify all the members of these groups (ii) describe in detail one member each from the two groups with emphases on their occurrences and properties.
-10marks
4. (a) Write exhaustively on the mineralogy and occurrence of five (5) types of potassic rocks.
(b) Classify feldspathoid rocks in order of relative abundance.
-10marks
5. Write exhaustively on basalts noting their composition, classification, geochemical characterization types and occurrence in Nigeria.
-10marks

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