



CRAWFORD UNIVERSITY, IGBESA,
FAITH CITY, IGBESA, OGUN STATE
COLLEGE OF NATURAL AND APPLIED SCIENCES
DEPARTMENT OF GEOLOGY AND MINERAL SCIENCES
2020/2021 RAIN SEMESTER EXAMINATION

COURSE TITLE: *GEOCHRONOLGY*

COURSE CODE: *GEM 204*

TIME ALLOWED: *2:30HRS*

INSTRUCTION: ANSWER QUESTION ONE AND ANY OTHER TWO

- (a) ^{147}Sm contains 3.25×10^{18} atoms of a nuclide that decays at a rate of 3.4×10^{13} disintegrations per 26 min, what percentage of it will have decayed after 159 days?

(b) The half-life in two different samples, A and B, of radio-active nuclei are related according to $T(1/2B) = T(1/2A)/2$. In a certain period, the number of radio-active nuclei in sample A decreases to one-fourth the number present initially. In the same period the number of radio-active nuclei in sample B decreases to a fraction f of the number present initially. Find f .

(c) You have 20.0 grams of ^{32}P that decays 5% daily. How long will it take for half the original to decay?
2. Explain the major disadvantage of K-Ar method that makes it difficult for the application of the result obtained to decipher polyphase geological contexts.
3. (a) Briefly explain the different mechanisms by which radionuclides disintegrate to stable forms
(b) Enumerate the assumptions inherent in radiometric dating
4. Write and balance the equations for the following reactions, using the periodic table provided where necessary:

 - Neutron initiated fission of U- 235 results in the release of beta particles, the formation of Sr- 90 and the release of Ce-146
 - Neutron initiated fission of U- 235 results in the release of neutrons, the formation of Cs- 144 and Rb-90
5. The African Continents essentially consists of five ancient Precambrian cratons, what are they?