



UNIVERSITY OF MINES AND TECHNOLOGY, TARKWA
FIRST SEMESTER EXAMINATIONS, NOV/DEC 2018

COURSE NO: MA 279

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COURSE NAME: BASIC PHYSICAL CHEMISTRY

CLASS: MA II

TIME: 3 HOURS

Name: _____ Index Number: _____

Answer All

1. a) **Explain** the quantum concept used by Bohr in his atomic model. (10 marks)
b) What is the uncertainty principle and what model of the atom did it give rise when it is combined with the quantum concept? (6 marks)
c) What are quantum number? (5 marks)
d) List the **four** main quantum numbers. (4 marks)

2. a) What is the **IUPAC Periodic table**. (5 marks)
b) Describe briefly the history behind the development of the periodic table. (5 marks)
c) Describe four ways elements are classified in the periodic table (10 marks)
d) Explain how the position of an element on the periodic table determines its periodic properties (NB: Use two periodic properties to explain). (5 marks)

3. a) Define/Explain the following terms (3 marks **each**)
 - (i) Heterogeneous Equilibrium
 - (ii) Homogenous Equilibrium
 - (iii) Reaction Quotient
 - (iv) Ionization Equilibrium Constant
 - (v) Solubility Product Equilibrium Constant
(b) Explain the concept of activity in chemical equilibrium expressions (10 marks)

4. a) List three equipments used for measuring radioactive decay of a species. (5 marks)
b) Explain four (4) peaceful applications of radioactivity. (20 marks)

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