



MASENO UNIVERSITY
UNIVERSITY EXAMINATIONS 2015/2016

**FIRST YEAR FIRST SEMESTER EXAMINATIONS FOR THE
DEGREE OF BACHELOR SCIENCE IN PUBLIC HEALTH WITH
INFORMATION TECHNOLOGY**

MAIN CAMPUS

PHT 114: PRINCIPLES OF CHEMISTRY

Date: 15th January, 2016

Time: 2.30 - 4.30 pm

INSTRUCTIONS:

- Answer ALL questions in SECTION A.



MASENO. UNIVERSITY

> PHT 114 PRINCIPLES OF CHEMISTRY

>

> SECTION A

> INSTRUCTIONS: Answer all questions in this section (4 marks each)

>

> 1. State the three bonding arrangements in the element CARBON

>

> 2. State the temperature measurement scales

>

> 3. State the atomic Mass of $^{25}_{12}\text{Mg}$

>

> 4. Illustrate the electronic configuration of the element $^{25}_{12}\text{Mg}$

>

> 5. What is the minimum number of electrons at principal energy level 4

>

> 6. Define. a). Molality

>

b). Molarity

>

> 7. Write LEWIS STRUCTURE for:

>

a) CS_2

>

b) CCl_4

>

> 8. Differentiate LEWIS from ARRHENIUS acid

>

> 9. Indicate which pair of elements below are similar :

>

a) $1s^2, 2s^2, 2p^1$

>

b) $1s^2, 2s^2, 2p^6, 3s^2, 3p^6$

>

c) $1s^2, 2s^2, 2p^6, 3s^2, 3p^6, 3d^{10}, 4s^2, 4p^6$

>

d) $1s, 2s^2, 2p^6, 3s^2, 3p^6, 3d^{10}, 4s^2, 4p^1$

>

> 10. Differentiate a sigma-bond from a pi-bond

>

> SECTION. B

> ATTEMPT TWO QUESTIONS FROM THIS SECTION

>

> 1. Predict the formula of reaction between:

>

a) Mg and Cl

>

b) Mg and N

> c) K. and S

> d) Al and S

>

> 2. Describe how the Periodic table can help illustrate the Metallic properties of elements

>

> 3. Explain and justify the AMPHIPROTIC. nature of:

> a) H_2O . b). $(\text{HSO}_4)^{1-}$