



# **GRETSA UNIVERSITY - THIKA**

## **UNIVERSITY EXAMINATIONS JANUARY – APRIL 2019 SEMESTER**

### **FOUNDATION IN HEALTH SCIENCES**

**COURSE CODE: GUBC 013**

**COURSE TITLE: BRIDGING COURSE IN CHEMISTRY**

**DATE: 09 APRIL 2019**

**TIME: 8.00 AM – 10.00 AM**

---

#### **INSTRUCTIONS TO CANDIDATES**

1. SECTION A IS **COMPULSORY**.
2. SECTION B: ANSWER ANY OTHER **THREE** QUESTIONS.
3. **DO NOT** WRITE ANYTHING ON THIS QUESTION PAPER AS IT WILL BE AN EXAM IRREGULARITY.
4. ALL ROUGH WORK SHOULD BE AT THE BACK OF YOUR ANSWER BOOKLET AND CROSSED OUT.

**CAUTION:** *All exam rooms are under CCTV surveillance during the examination period.*

**SECTION A: COMPULSORY**

**SECTION A: MULTIPLE CHOICE QUESTIONS**

**[ONE MARK EACH]**

---

1. In organic compounds, carbon forms covalent bond with the following non-metals except?
  - A. Oxygen
  - B. Nitrogen
  - C. hydrogen
  - D. mercury
  
2. Which of the following is not a hydrocarbon
  - A. alkanes
  - B. alkali
  - C. alkynes
  - D. alkenes
  
3. Which of the physical conditions affect the gases
  - A. Humidity
  - B. Concentration
  - C. Temperature
  - D. Volume
  
4. Which are the three states of matter?
  - A. Solid
  - B. Water vapour
  - C. Liquid
  - D. Gas
  
5. All of the following are chemical bonds except?
  - A. Covalent bond
  - B. Element bond
  - C. Metallic bond
  - D. Ionic bond

## SHORT ANSWER QUESTION

---

1. Highlight five basic postulates of John Dalton's Theory [5 marks]
2. Identify five properties of a proton [5 marks]
3. Differentiate between an atom and an ion [4 marks]
4. Outline five intermolecular forces that exist in a hydrogen molecule [5 marks]
5. State five safety guideline rules to be followed in chemistry laboratory [5 marks]
6. Differentiate between evaporation and boiling [3 marks]
7. State the uses of chromatography [3marks]
8. Name the following structures
  - a)  $\text{H}_2\text{C}=\text{CH}-\text{CH}=\text{CH}_2$  [ 2  
Marks]
  - b)  $\text{H}_2\text{C}=\text{C}(\text{CH}_3)-\text{C}(\text{CH}_3)=\text{C}(\text{CH}_3)-\text{CH}_3$  [3 marks]

## SECTION B: ANSWER ANY THREE QUESTIONS

- 1.
- a) Discuss four methods of separating mixtures [8 marks]
  - b) Explain five roles of chemistry in the society [10 marks]
  - c) State Boyles law hence draw a graph to represent the law [2marks]
- 2.
- a) Discuss five importance of change of state [10 marks]
  - b) 0.135 g of a gaseous hydrocarbon X on complete combustion produces 0.41 g of carbon(IV)oxide and 0.209g of water.0.29g of X occupy  $120\text{cm}^3$  at room temperature and 1 atmosphere pressure .Name X and draw its molecular structure.(C=12.0,O=16.0,H=1.0,1 mole of gas occupies  $24\text{dm}^3$  at r.t.p) [10 marks]
- 3.
- a) Compound A contain 5.2% by mass of Nitrogen .The other elements present are Carbon, hydrogen and Oxygen. On combustion of 0.085g of A in excess Oxygen,0.224g of carbon(IV)oxide and 0.0372g of water was formed. Determine the empirical formula of A (N=14.0, O=16.0 , C=12.0 , H=1.0) 10mks
  - b) Discuss four uses of alkanes [8mks]
  - c) Highlight two physical properties of alkanes [2mks]
- 4.
- a) A hydrocarbon burns completely in excess air to form 5.28 g of carbon (IV) oxide and 2,16g of water. If the molecular mass of the hydrocarbon is 84, draw and name its molecular structure. [10mks]
  - b) Discuss five differences between luminous and none luminous flame [10Marks]
- 5.
- a) If  $5\text{cm}^3$  of a hydrocarbon  $\text{C}_x\text{H}_y$  burn in  $15\text{cm}^3$  of Oxygen to form  $10\text{cm}^3$  of Carbon(IV)oxide and  $10\text{cm}^3$  of water vapour/steam, obtain the equation for the reaction and hence find the value of x and y in  $\text{C}_x\text{H}_y$ . [10mks]
  - b) Discuss five apparatus that can be used to measure volume [10Marks]