JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF HEALTH SCIENCES

UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE

PUBLIC HEALTH/COMMUNITY HEALTH AND DEVELOPMENT

1ST YEAR 1ST SEMESTER 2018/2019 ACADEMIC YEAR

NAMBALE CAMPUS

COURSE CODE: **HCD 3124**

COURSE TITLE: **PHYSICAL CHEMISTRY**

EXAM VENUE: **STREAM: BSc Public/ Comm. Hlth & Dev**

DATE: **EXAM SESSION:**

TIME: 2.00 HOURS

Instructions:

1. **This exam consists of 10 questions. Questions 1 to 6 carry 10 marks each. Questions 7-10 carry 20 marks each. ANSWER QUSTIONS 1-6 AND ANY OTHER TWO QUESTIONS.**
2. **Candidates are advised not to write on the question paper.**
3. **Candidates must hand in their answer booklets to the invigilator while in the examination room.**

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1. Define the following terms
a) Open system
b) Closed system
c) Isolated system
d) Thermodynamic system

2. Differentiate between the two basic forms of energy exchange

3. Define steady state kinetics

4. With regard to carbohydrates, define the following terms;
   i)Aldose ii)ketone iii) hexose iv) D- Monosaccharide

5. State any five functional groups in the chemistry of life

6. For the oxidation of ammonia
   $4NH_3 + 3O_2 = 2N_2 + 6H_2O$
   It was found that the rate of formation of N_2 was $0.27 mol^{-1}S^{-1}$
a) At what rate was water being formed
b) At what rate was ammonia being consumed

7. Give conditions for
   i. Homogenous reactions
   ii. Heterogeneous reactions

8. Discuss the factors that influence the chemical reaction rates

9. Discuss the physicochemical properties of the three types of carbohydrates

10. Discuss the three Laws of thermodynamics