



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY  
SCHOOL OF HEALTH SCIENCES  
UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE  
IN PUBLIC HEALTH/ COMMUNITY HEALTH AND DEVELOPMENT**

**1<sup>ST</sup>YEAR 2<sup>ND</sup>SEMESTER 2019/2020**

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**COURSE CODE: HPB 3121**

**COURSE TITLE: Medical Physiology**

**EXAM VENUE: STREAM**

**DATE:**

**EXAM SESSION:**

**TIME:**

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**Instructions:**

- 1. Answer all questions in section A and any other 2 questions in Section B.**
- 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**

**SECTION A 30MKS**

**Answer all questions**

1. Define the following terms: **(1 mark each)**
  - a) Cardiac index
  - b) Blood volume
  - c) A man has a resting oxygen consumption of 280ml of oxygen per minute, a peripheral arterial oxygen content of 0.25ml of oxygen per ml of blood and venous oxygen concentration of 0.20ml of oxygen per ml of blood. Using Fick principle, calculate his cardiac output **(4 marks)**
2. What is an ependymal cell, what does it do? **(2 marks)**
3. Describe briefly the Renin Angiotensin Aldosterone System (RAAS) **(4 marks)**
4. State the THREE most common types of buffer systems in the human body. **(3 marks)**
5. Describe the difference between the limbic system and analgesia system **(4 marks)**
6. Name the hormones of the posterior pituitary gland **(2 marks)**
7. A boy of 13 years was brought by his father to a medical specialist. The boy because of retarded growth appeared to be of 4-5 years. During talking the boy answered the question intelligently. His body parts were proportionate but of smaller size: **(2 marks each)**
  - a) From which disorder the boy was suffering?
  - b) What was the cause of this disorder?
  - c) What are different types of this disorder?
8. Briefly discuss the functions of the lymphatic system **(3 marks)**

**SECTION B 40MARKS**

Answer any TWO questions from this section

1. a) Discuss in detail **five** functions of the Liver (15 marks)  
b) Discuss in detail the endocrine regulation of serum calcium level (5 marks)
2. a) Explain the features of metabolic acidosis and compensation of acidosis (10 marks)  
b) Discuss the spinobulbospinal reflex of micturition (10 marks)
3. a) State the name and explain the function of all the cranial nerves (12 marks)  
b) Describe the physiological effects of the thyroid and parathyroid hormones (8 marks)
4. Mr. Olumbe was passing near a disco ram, and responded to the music by dancing; including the pathway followed by the sound from the ear to the brain, discuss the reflex of dancing (20 marks)