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**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**

**1STYEAR 2ndSEMESTER 2016/2017**

**MAIN CAMPUS**

**COURSE CODE: HCD 3121**

**COURSE TITLE: MEDICAL PHYSIOLOGY**

**EXAM VENUE: LAB 18**

**DATE:**

**EXAM SESSION:**

**TIME:**

**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. What is the normal blood calcium level? **(2 marks )**
2. a) Define cardiac output **(2 marks)**

b) A man has a resting oxygen consumption of 0.27 l of oxygen per minute, a peripheral arterial oxygen content of 0.24ml of oxygen per ml of blood and venous oxygen concentration of 0.19ml of oxygen per ml of blood. Using Fick principle, calculate his cardiac output **(3 marks)**

1. What is an oligodentrocyte cell, what does it do? **(2 marks)**
2. a) Define glomerular filtration rate - GFR **(2marks)**

b) Enlist three determinants of GFR**. (3marks)**

1. State the THREE most common types of buffer systems in the human body. (3 marks)
2. Describe the analgesia system of the brain **(1mark)**
3. Name the hormones of the posterior pituitary gland **(2 marks)**
4. A boy of 10 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: (**1mark each)**
5. From which disorder the boy was suffering?
6. What was the cause of this disorder?
7. What are different types of this disorder?
8. Describe four functions of the skin **(4marks)**
9. Briefly discuss the menstrual cycle in females and how it enables the uterus perform its functions.**(3marks)**

**SECTION B 40MARKS**

Answer any TWO questions from this section

1. Discuss in detail the functions of the kidney (20 marks)
2. **a)** Discuss in detail the endocrine regulation of serum calcium level (**10marks)**

**b)** Discuss using a diagram the pathway for somatic pain- use example of polysynaptic reflex-the flexor and crossed extensor reflexes (withdrawal of leg ) **(10 marks)**

1. **a)** Explain the features of metabolic acidosis and compensation of acidosis (10 marks)

 b) Discuss the spinobulbospinal reflex of micturition (10 marks)

4. 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)