



***“Investing in Africa’s future”***

**COLLEGE OF HEALTH, AGRICULTURE & NATURAL SCIENCES**

**NSNS324: HUMAN PHYSIOLOGY**

**END OF SECOND SEMESTER FINAL EXAMINATIONS**

**APRIL/MAY 2022**

**LECTURER: Dr. S Chituku**

**DURATION: 3 HRS**

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### **INSTRUCTIONS**

You are required to answer questions as instructed below

Answer any **four (4)** questions in this paper

Credit will be awarded for logical, systematic and neat presentations

### Question 1

- i) Considering the major function of the cardiovascular system explain the challenges that could occur should the system fails to operate effectively. **[10]**
- ii) The cardiac muscle relies solely on calcium influx for an effective contraction of the myocardium. With reference to two sources of calcium explain the role of calcium in myocardium contraction **[10]**
- iii) A 40 year old man was admitted and monitored for heart rate. His heart rate ranged between 60 and 80 beats per minute. Outline factors influencing heart rate. **[5]**

### Question 2

- a) The reproductive system functions to produce gametes and reproductive hormones required for procreation.
  - i) Describe the hormonal control of male reproductive function. **[5]**
  - ii) Testosterone levels normally remain stable. Analyse how the negative feedback mechanism maintains the levels within the normal levels. **[5]**
  - iii) Describe the major events in the menstrual cycle. **[8]**
  - iv) Outline events which occur during an ovarian cycle. **[7]**

### Question 3

- b) In the body defence system there are a number of major organs and tissues playing a critical role.
  - i) Identify two primary lymphatic organs and highlights their significance. **[5]**
  - ii) Analyse the critical role the mucus membrane plays in body defence. **[5]**
  - iii) The immune response operate with two important major process. Giving four classes of immune molecules, describe the antibody mediated immunity. **[15]**

### Question 4

- c) The muscle system is important in producing body movement and maintenance of body posture.
  - i) With reference to three well defined types, describe the general properties of the muscles of the body. **[7]**
  - ii) Analyse the general structure of the skeletal muscle cells, which give it its typical structure and function. **[10]**
  - iii) Describe the processes involved in muscle cell contraction. **[8]**

### Question 5

- a) The intact skin is very important in providing a physical barrier, which prevents invasion of body by pathogens.
- i) Analyse the characteristics of the skin that enables it to provide the important role. **[12]**
  - ii) Following a successful invasion of skin by pathogen, an inflammatory response is often triggered, which prevents spread of the infection. Describe the process of inflammatory response that normally occurs. **[13]**

**End of Paper**