

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

SECOND YEAR EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE (GENERAL)

ZOOL 436: COMPARATIVE ANIMAL PHYSIOLOGY

STREAMS: BSC; BED (SCI)

TIME: 2 HOURS

DAY/DATE: FRIDAY 14/12/2018

11.30 A.M - 1.30 P.M.

INSTRUCTIONS

Answer **ALL** questions in Section A and any other **TWO** questions in Section B

SECTION A - [30 MARKS]

1. (a) Differentiate between the following terms:
 - (i) Binary and multiple fission [1 Mark]
 - (ii) Haemocyanin and haemoglobin [1 Mark]
 - (iii) Open and closed circulation [1 Mark]
 - (iv) Isogamy and Anisogamy [1 Mark]

- (b) Explain the functions of the following
 - (i) Carbonic anhydrase [1 Mark]
 - (ii) Sinus venosus [1 Mark]

2. (a) State two features that make crocodilian heart different from that of other reptiles. [2 Marks]

- (b) Determine the stroke volume and the cardiac output of a man whose End Systolic Volume (ESV) is 50ml; End Diastolic Volume (EDV) is 120ml and heart rate of 72 bpm. [4 Marks]

3. (a) Describe briefly the mechanism of urine formation in earthworms. [3 Marks]
- (b) Explain how marine vertebrates get rid of excess salts. [3 Marks]

4. With the aid of examples, describe types of hermaphroditism. [6 Marks]

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5. Differentiate between: -
- (a) Myogenic and mammalian respiratory systems. [3 Marks]
 - (b) Avian and mammalian respiratory systems. [3 Marks]

SECTION B: [40 MARKS]

6. Discuss the mechanism of thermoregulation in ectotherms and endotherms. [20 Marks]
7. (a) Describe gas exchange surfaces of invertebrates. [12 Marks]
- (b) Discuss the factors that affect oxygen-haemoglobin dissociation. [8 Marks]
8. Discuss the disadvantages of sexual reproduction in animals. [20 Marks]
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