UNIVERSITY OF SWAZILAND

MAIN EXAMINATION PAPER 2012

TITLE OF PAPER : INVERTEBRATE ZOOLOGY

COURSE CODE : B204

TIME ALLOWED : THREE HOURS

INSTRUCTIONS : 1. ANSWER ANY FOUR (4) QUESTIONS

2. WHEREVER POSSIBLE ILLUSTRATE YOUR ANSWERS WITH LARGE CLEARLY LABELLED DIAGRAMS

SPECIAL REQUIREMENTS: NONE

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Question 1

Using named examples and illustrations, distinguish the following modes of reproduction:
  i.   binary fission   (3)
  ii. budding   (3)
  iii. fragmentation   (5)
  iv. schizogony   (5)
  v.   conjugation   (9)
[Total = 25 marks]

Question 2

a. Using the arthropod cuticle as an example, illustrate how the structure and function of this feature has contributed to arthropod success.   (15)

b. What is torsion? Using a named taxon, discuss how it occurs as well as how it affects the final body plan.   (10)
[Total = 25 marks]

Question 3

a. Compare and contrast the variation in animal body plans with regard to the following:
  i.   Symmetry
  ii.   Cellularity   (15)

b. Discuss cleavage as observed in an isolecithal egg.   (10)
[Total = 25 marks]

Question 4

a. Illustrate in detail the echinoderm water vascular system and enumerate its functions.   (15)

b. List five different types of cells that might be found in the body wall of a typical cnidarian and the primary function(s) of each.   (10)
[Total = 25 marks]

Question 5

Using named examples, define and identify the value of the following to organisms:

  i.   Asexual reproduction
  ii.   Neoteny
  iii. Epitoky
  iv.   Tagmosis
  v.   Cryptobiosis

[Total = 25 marks]

Question 6

Invertebrate size is normally restricted by the ability to distribute food to all cells in the organism's body. Explain how the following are used by named invertebrates to overcome this problem:

 i. Keeping all cells close to environment

 ii. Increasing the surface area

 iii. Developing an internal transport system

[Total = 25 marks]

UNIVERSITY OF SWAZILAND

MAIN EXAMINATION PAPER 2012/2013

TITLE OF PAPER: VERTEBRATE ZOOLOGY

COURSE CODE: B302

TIME ALLOWED: THREE (3) HOURS

INSTRUCTIONS: 1. ANSWER ANY <u>FOUR</u> QUESTIONS.

2. EACH QUESTION CARRIES TWENTY FIVE (25) MARKS.

3. ILLUSTRATE YOUR ANSWERS WITH LARGE AND CLEARLY LABELED DIAGRAMS WHERE APPROPRIATE.

SPECIAL REQUIREMENTS:

NONE

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ANSWER ANY FOUR (4) OUT OF THE SIX (6) QUESTIONS

QUESTION 1

Write an essay on the diversity and life histories of Swaziland's squamates (Order: Squamata).

[25 marks]

QUESTION 2

Describe and compare the process of respiration in the Chondrichthyes, Amphibia, Reptilia, Aves and Mammalia.

[25 marks]

QUESTION 3

With the aid of well labelled diagrams, depict the cranium of a typical solenoglyph snake and that of a typical lizard. Show how these two skulls differ, and how this affects cranial kinesis in these two groups of reptiles.   **[25 marks]**

QUESTION 4

Contrast the different reproductive strategies present within the class Aves.   **[25 marks]**

QUESTION 5

Describe the modes of locomotion in a typical chondrichthyian and osteichthyian fish. Discuss in detail the role that the swim bladder plays in the osteichthyians, and how the condrichthyians manage without it.

[25 marks]

QUESTION 6

The digestive systems of herbivorous mammals show remarkable adaptations for the processing of plant material. With the aid of diagrams, explain how digestion is achieved in different mammalian herbivores; and how this differs from that of a typical (e.g. carnivorous) mammals.

[25 marks]