

UNIVERSITY OF SWAZILAND

MAIN EXAMINATION PAPER 2011

TITLE OF PAPER : INVERTEBRATE ZOOLOGY

COURSE CODE : B204

TIME ALLOWED : THREE HOURS

INSTRUCTIONS :

1. THIS PAPER HAS TWO SECTIONS, A AND B
2. SECTION A IS COMPULSORY
3. ANSWER ANY THREE (3) QUESTIONS FROM SECTION B
4. WHEREVER POSSIBLE ILLUSTRATE YOUR ANSWERS WITH LARGE CLEARLY LABELLED DIAGRAMS

SPECIAL REQUIREMENTS: NONE

THIS PAPER IS NOT TO BE OPENED UNTIL PERMISSION HAS BEEN GRANTED BY THE INVIGILATORS

SECTION A (Compulsory)

QUESTION 1

Match the organism or term on the right with the most appropriate item on the left.

- | | |
|--|---------------------------------|
| _____ causes cattle tick fever | 1) nematocysts |
| _____ human African trypanosomiasis | 2) sea cucumbers |
| _____ shelled amoeba | 3) synapormorphy |
| _____ products of schizogony | 4) planaria |
| _____ respire over body surface | 5) Lophophorata |
| _____ reabsorbed during moulting | 6) <i>Babesia</i> sp. |
| _____ sponge reproduction | 7) Brachiopoda |
| _____ paedomorphosis | 8) <i>Schistosoma mansoni</i> |
| _____ causes abortion in humans | 9) Foraminifera |
| _____ zooids formed before fission | 10) gastrulation |
| _____ unsegmented posterior region | 11) <i>Giardia lamblia</i> |
| _____ rigid protective wings | 12) <i>Entamoeba gingivalis</i> |
| _____ 1 st step in morphogenesis | 13) halteres |
| _____ amoeba in your gums | 14) <i>Trypanosoma brucei</i> |
| _____ enzyme secretion in anthozoa | 15) merozoites |
| _____ ciliated wheel-like crown | 16) paratomy |
| _____ balancing organs | 17) corona |
| _____ gynecophoral canal | 18) autapomorphy |
| _____ rigid cover in ciliates | 19) Schistosomatidae |
| _____ used for sperm transfer by the coleoidea | 20) lophophore |
| _____ shared ancestral trait | 21) pellicle |
| _____ penis fencing | 22) gemmule |
| _____ cell drinking | 23) acontia |
| _____ mosaic image | 24) elytra |
| _____ bilharzia | 25) onychophora |
| _____ stinging cells | 26) Hemichordata |
| _____ used to construct phylogenetic trees | 27) endocuticle |

- | | |
|--|------------------------------|
| _____ stomochord | 28) Opisthobranchia |
| _____ mesodermal endoskeleton | 29) pinocytosis |
| _____ central disk splits for asexual reproduction | 30) fissiparity |
| _____ expulsion of internal organs | 31) syplesiomorphy |
| _____ infective form developed in hindgut | 32) tun |
| _____ crown of ciliated tentacles around mouth | 33) compound eye |
| _____ apomorphy restricted to one taxon | 34) Echinodermata |
| _____ annelid/arthropod link | 35) hectocotylus arm |
| _____ resistant stage during anabiosis | 36) Larvacea |
| _____ protostome/deuterostome link | 37) stercoraria |
| _____ gamete carrier | 38) pygidium |
| _____ intestinal parasite | 39) <i>Toxoplasma gondii</i> |
| _____ calcareous dorsoventral bivalve shell | 40) epitoke |

[Total = 40 marks]

SECTION B

Answer any **three (3)** questions.

QUESTION 2

a. List the name and function of six different cell types that might be found in the body of a poriferan and the primary function of each. (10)

b. Define the following:

- | | |
|--------------------|-----|
| i. Invagination | (2) |
| ii. Synapomorphy | (2) |
| iii. torsion | (3) |
| iv. paedomorphosis | (3) |

[Total = 20 marks]

QUESTION 3

a. What is a larva? Use the following to explain why marine invertebrates and parasites have indirect development. (5)

b. Using named examples, discuss in detail the developmental patterns observed in the Class Insecta (15)

[Total marks = 20]

QUESTION 4

a. Using illustrations, discuss in detail the structure and function of excretory organs observed in invertebrates. (12)

b. Coleoidea one of the most advanced invertebrate groups. What has limited their evolution? (18)

[Total = 20 marks]

QUESTION 5

a. What has contributed to the success observed in the phylum Mollusca? (10)

b. Briefly describe the various modes of nutrition observed in the protozoans. (10)

[Total = 20 marks]

QUESTION 6

Using named examples, discuss strategies employed by parasites to overcome the challenges they encounter during their lifecycles.

[Total = 20 marks]