

UNIVERSITY OF SWAZILAND

MAIN EXAMINATION PAPER 2017

TITLE OF PAPER : INVERTEBRATE ZOOLOGY

COURSE CODE : BIO251

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

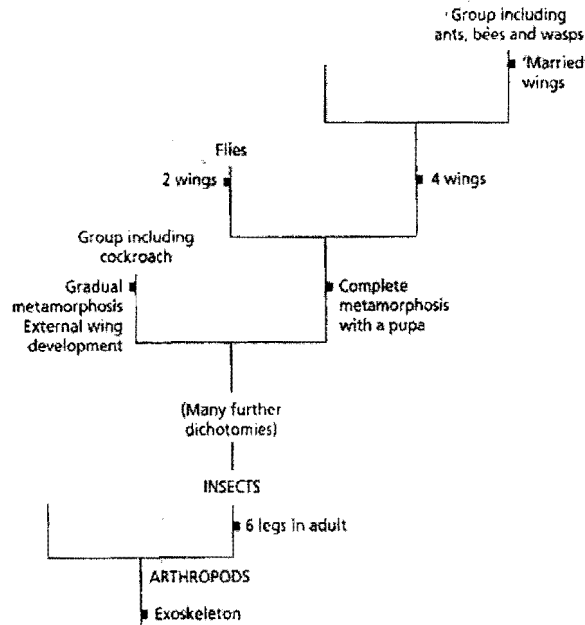
SPECIAL REQUIREMENTS: NONE

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

SECTION A (Compulsory)

QUESTION 1

Using the diagram below, identify features which can be used to answer questions 1 to 3.

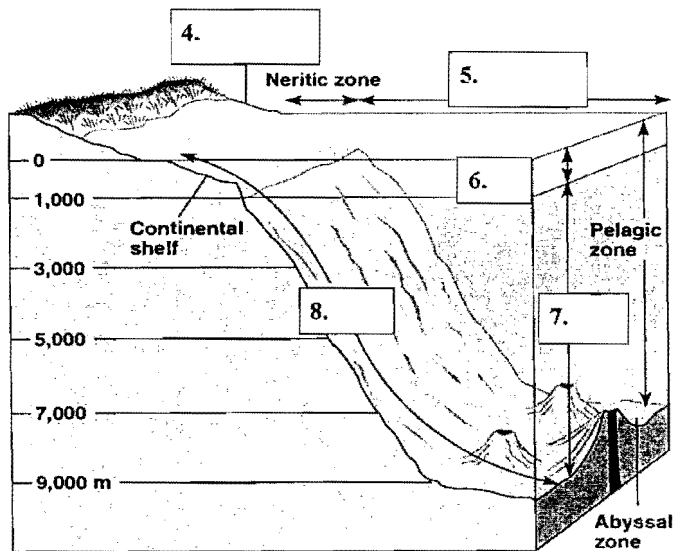


1. Pleisiomorphy for insects _____

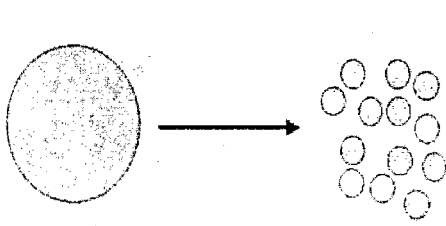
2. Autapomorphy for flies _____

3. Synapomorphy for ants, bees and wasps _____

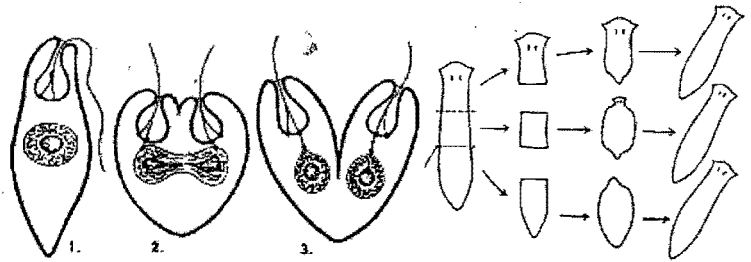
4-8 Identify the different zones of the marine habitat as shown in the diagram below.



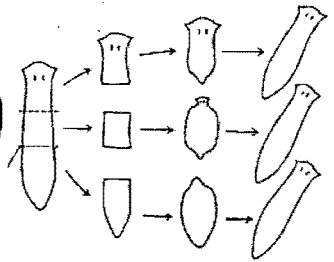
9-13 What type of reproduction is shown in each of the following illustrations?



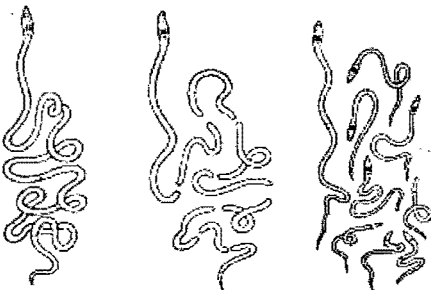
9.



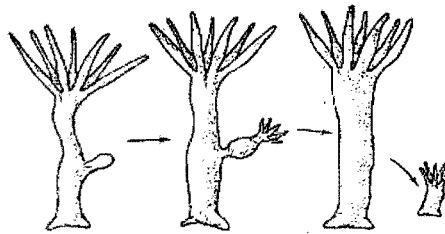
10.



11.

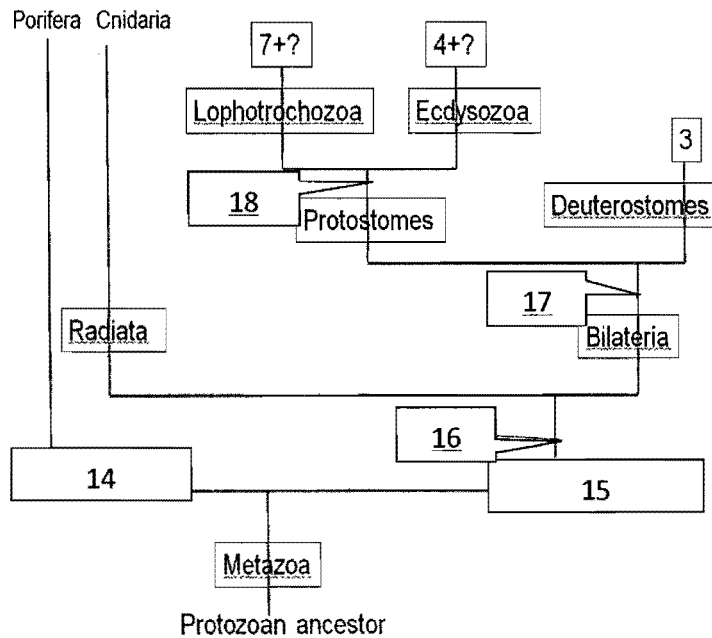


12.



13.

In the diagram below, specify diagnostic features from 14 to 18 which distinguish the branches indicated.



For questions 19 to 25, match the organism or term on the right with the most appropriate one on the left.

- | | |
|--------------------------------------|-----------------------|
| 19. used for spermatophore transfer | a. Gastropoda |
| 20. gamete carrier | b. hectocotylus arm |
| 21. mates only once | c. jointed appendages |
| 22. undergo torsion | d. ommatidia |
| 23. units making up the compound eye | e. epitoke |
| 24. product from leeches | f. semelparous |
| 25. Arthropoda | g. hirudin |

[Total = 25 marks]

SECTION B

Answer any three (3) questions.

QUESTION 2

a. How are the following used to describe animal body plans?

- i. Symmetry
- ii. Cellularity

(15)

b. Invertebrates live in marine, freshwater systems and terrestrial habitats. Which habitat is most suitable for them? Explain your answer.

(10)

[Total = 25 marks]

QUESTION 3

a. Copy the table below and fill it in:

Characteristic	Protostomes	Deuterostomes
Cleavage pattern		
Coelom formation		
Fate of blastomeres		
Future of blastopore		
Prototype larvae		

(10)

b. Illustrate the life cycle of *Schistosoma mansoni*. Identify the disease it causes and give reasons for its economic importance.

(15)

[Total = 25 marks]

QUESTION 4

a. Briefly define the following and explain their adaptive advantage in Cnidarians:

- i. Alternation of generations (5)
- ii. Colony formation (5)
- iii. Coral formation (5)

b. What is a larva? Use specific examples, discuss which invertebrates have larvae and why. (10)

[Total = 25 marks]

QUESTION 5

a. Briefly explain what Mollusca has limited the evolution of Mollusca. (9)

b. Distinguish between the following (with named examples):

- i. Trochophore and veliger larvae
- ii. Symplesiomorphy and synapomorphy
- iii. atoke and epitoke
- iv. Lophophore and radiole

(16)

[Total = 25 marks]

QUESTION 6

Using named examples write short notes on the economic and ecological importance of the following

- i. Cnidarian - Coral reefs (10)
- ii. Oligochaeta - Earthworms (10)
- iii. Mollusca (5)

[Total = 25 marks]