

**NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY
FACULTY OF INDUSTRIAL TECHNOLOGY
DEPARTMENT OF TECHNICAL TEACHER EDUCATION
Bed HONOURS DEGREE BIOLOGY**

THE DIVERSITY OF LIFE: TBE 1136

MAIN EXAMINATION

September 2010

Time Allowed: 3 Hours

Total Marks 100

INSTRUCTIONS TO CANDIDATES:

Answer Any **FOUR** Questions. Each Question Carries **25 Marks**

1. (a) Give a clear and concise definition of biodiversity and Explain clearly the three levels of biodiversity **[10 marks]**

(b) State and discuss **five** major causes of biodiversity loss in Zimbabwe. **[15 marks]**
2. Discuss the importance of biodiversity for the supply of ecosystem services and goods that all people ultimately depend on at all scales, from the individual to the global, rich and poor alike.
3. Outline the Five Kingdom classification system of the living organisms and describe the diagnostic features /characteristics of each kingdom. Give at least two named examples of taxa found in each of these categories.
4. Write short notes and illustrate with examples the following terms
 - (a) The Linnaean Hierarchy of Classification **[7 marks]**
 - (b) Taxonomic Characters used in biological classifications **[10 marks]**
 - (c) The value of systematics (classifications and taxonomy) in biology. **[8 marks]**
5. Describe the basic cellular structure and general characteristics of Bacteria and Fungi and explain the beneficial and negative roles played by each of these organisms in the web of life and the environment.
6. Describe the major distinguishing features of the following groups of plants: Bryophytes, Pteridophytes, Gymnosperms and Angiosperms. Give named examples of each division.

*****END OF PAPER*****

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SUPPLEMENTARY EXAMINATION

October 2010 Time Allowed: 3 Hours Total Marks 100

INSTRUCTIONS TO CANDIDATES:

Answer Any **FOUR** Questions. Each Question Carries **25 Marks**

1. State any five major causes of biodiversity loss in Africa and explain any five biodiversity conservation strategies that Zimbabwe is currently implementing.
2. Discuss the value of biodiversity to the humans
3. (a) Angiosperms are divided into two subclasses, the monocotyledons and dicotyledons, outline the morphological differences between these two groups. **[14 marks]**

(b) Explain why angiosperms are the most successful plants on land **[11 marks]**
4. Describe the major distinguishing features of the following groups of Animals: mammals, reptiles, amphibians, birds and fish. Give named examples of each division.
5. Describe the basic cellular structure and general characteristics of Bacteria and Fungi and explain the beneficial and negative roles played by each of these organisms in the web of life and the environment.
6. Write short notes and illustrate with examples the following terms
 - (d) The Linnaean Hierarchy of Classification **[7 marks]**
 - (e) Taxonomic Characters used in biological classifications **[10 marks]**
 - (f) The value of systematics (classifications and taxonomy) in biology. **[8 marks]**

*****END OD PAPER*****

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INVERTEBRATE BIOLOGY: TBE 1238

MAIN EXAMINATION

September 2010

Time Allowed: 3 Hours

Total Marks 100

INSTRUCTIONS TO CANDIDATES:

Answer Any **FOUR** Questions. Each Question Carries **25 Marks**

1. (a) Describe the basic cellular structural and functional organisation, and modes of reproduction of Protists. **[12 marks]**
 (b) Distinguish the following Phyla of Kingdom Protista: Mastigophora, Ciliophora, Sporozoa and Sarcodina. Give one named example for each of these groups of invertebrates. **[13marks]**

2. (a) Describe the life-cycle of the protozoa parasite causing malaria in humans and describe the symptoms of the disease. **[12 marks]**
 (b) Discuss the methods used to control and prevent spread of the disease pathogen in humans **[13 marks].**

3. (a) Briefly explain the following body plan terms used by scientists to classify invertebrate animals: body shape (symmetry), tissue layers and body cavity (coelom) **[7 marks]**
 (b) Complete the table below to compare and contrast the seven invertebrate animal phyla and give an example in column one. **[18 marks]**

Phylum and examples	Symmetry	Tissue layers	Coelom	Level of organisation	Skeleton
Porifera					
Cnidaria					
Platyhelminthes					
Nematoda					
Annelida					
Mollusca					
Arthropoda					

4. (a) Describe the major characteristics of the Arthropod Class Insecta [5 marks]
 (b) Discuss the ecological role played by insects [20 marks]
5. Insects are the most successful group of invertebrate animals on earth. Discuss the reasons for insect success on both land and water.
6. (a) Figure 1 below shows the basic body structure of an insect body. Name the parts labelled 1; 2; 3; 4; 5; 6; 7; 8; 9; and 10 [10 marks].
 (b) Describe the functions of the body regions labelled 1; 2 and 3 [6 marks]

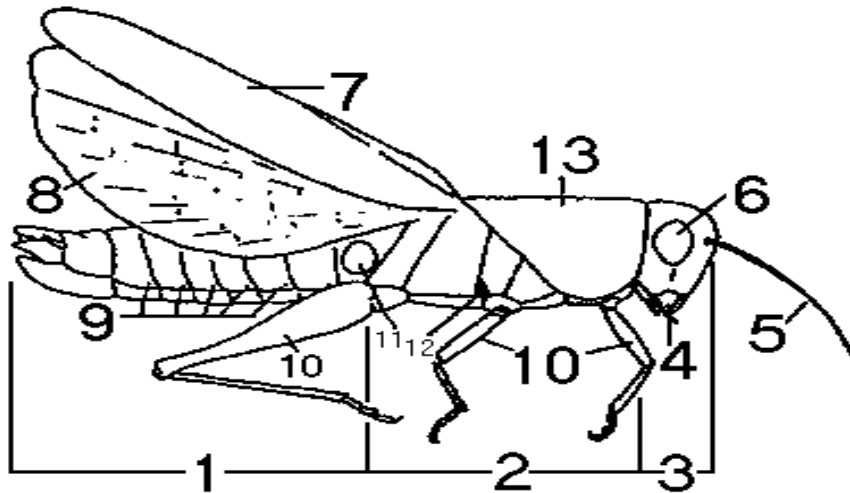


Figure1. Basic body plan of Insects

- (c) Insect legs have been modified from the basic walking type in order to perform other functions. Name and describe **four** of these leg modifications and the types of insects in which they are found. [9 marks]

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INVERTEBRATE BIOLOGY: TBE 1238

SUPPLEMENTARY EXAMINATION

October 2010 Time Allowed: 3 Hours Total Marks 100

INSTRUCTIONS TO CANDIDATES:

Answer Any **FOUR** Questions. Each Question Carries **25 Marks**

1. Describe the basic cellular structure and general characteristics of Protists and name any two protists parasitic to the humans.
2. (a) Describe the life-cycle of the protozoa parasite causing malaria in humans and describe the symptoms of the disease. **[12 marks]**
 (b) Discuss the methods used to control and prevent spread of the disease pathogen in humans. **[13 marks]**
3. Complete the Table below to compare and contrast the invertebrate animal phyla given. In the column *Level of organisation*, describe this using the words: *cellular, tissue, organ or organ system level*.

Phylum	Symmetry	Tissue layers	Coelom	Level of organisation
Porifera				
Cnidaria				
Platyhelminthes				
Nematoda				
Annelida				
Mollusca				
Arthropoda				

4. (a) Describe the major characteristics of the Arthropod Class Insecta **[5 marks]**
 (b) Discuss the positive and negative roles played by insects in ecosystems. **[20 marks]**
5. Insects are the most successful group of invertebrate animals on earth. Discuss the reasons for insect success on earth.
6. Distinguish between the terms complete and incomplete metamorphosis in insect development and discuss the advantages and disadvantages of each type of life cycle. Give named examples of an insect groups for each development type

*****END OD PAPER*****