

THE OPEN UNIVERSITY OF SRI LANKA

ADVANCED CERTIFICATES IN SCIENCE PROGRAMME 2024/2025

LEVEL 2 – ZYF2512 (New Structure)

BIOLOGY 2

FINAL EXAMINATION

DURATION – THREE HOUR



Date :2025.03.09

Time: 1.30 pm- 4.30 pm

Index No. :

The Question paper consists of two parts - I and II

Answer all questions in Part I (A & B) and any three (03) questions from Part II

- Answers for the Multiple Choice Questions in **part I -(A)** should be provided by placing **X** in the relevant cage indicating the most correct answer in the MCQ box provided.
 - Answers for the structured essay question in **part I-(B)** should be written in the space provided in the question paper.
 - At the end of the examination submit all **MCQ** questions with your answer script.
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Index No.-----

MCQ BOX

Ques.No	a	b	c	d
1.1				
1.2				
1.3				
1.4				
1.5				
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1.7				
1.8				
1.9				
1.10				
1.11				
1.12				
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1.19				
1.20				
1.21				
1.22				
1.23				
1.24				
1.25				

PART -1 A - Multiple choice questions

I

1.1 Dense connective tissue is found in,

- a) Trachea b) Tendon c) External ear d) Bronchi

1.2 The function of epithelial tissue is:

- a) Conduction of nerve impulses c) Protection and absorption
b) Contraction and movement d) Providing structural support

1.3 Presence of Haversian systems is characteristic to

- a) Hyaline cartilage b) Muscular tissue c) Bone tissue d) Adipose tissue

1.4 Which of the following is common to both cardiac muscle fibre and smooth muscle fibre?

- a) Striated structure c) Never fatigue
b) Spindle shape d) Involuntary control

1.5 Which of the following organisms belongs to the kingdom Protista?

- a) Bacteria b) Amoeba c) Mushroom d) Virus

1.6 Which one of the following diseases is caused by a protist?

- a) Tuberculosis b) Influenza c) Malaria d) Tetanus

1.7 Which type of cells are responsible for water movement and food capture in sponges

- a) Mesohyl cells c) Pinacocytes
b) Choanocytes d) Ameboid cells

1.8 Cnidarian's asexual reproduction occurs by

- a) Budding b) Gametes c) Conidia d) spores

1.9 Nematocysts in Cnidarians are used in ?

- a) Locomotion c) Digestion & absorption
b) Defense and capturing prey d) Excretion

1.10 Which statement is **true** about the digestive system of Trematodes?

- a) The mouth is located ventrally.
b) It possess an eversible muscular pharynx
c) It is an incomplete system.
d) It is highly reduced and nutrients are absorbed through the tegument..

1.11 Which of the following feature is not characteristic to Nematodes?

- a) Pseudocoelom
- b) Tough flexible cuticle
- c) Open blood system
- d) Sexual dimorphism

1.12 Parapodia are the locomotory organs in?

- a) Polychaets
- b) Oligochaets
- c) Hirudineans
- d) Nemertens

1.13 Presence of Calcareous with eight overlapping plates is an unique feature of class

- a) Monoplacophora
- b) Polyplacophora
- c) Gastropoda
- d) Cephalopoda

1.14 Which of the following is a distinguishing feature of the class Crustacea?

- a) Cephalothorax covered by a carapace
- b) Two pairs of legs per segment
- c) Lack of antennae
- d) Malpighian tubules for excretion

1.15 Which class of echinoderms includes feather stars and sea lilies?

- a) Asteroidea
- b) Holothuroidea
- c) Ophiuroidea
- d) Crinoidea

1.16 Bony fishes belong to class

- a) Chondrichthyes
- b) Acanthodi
- c) Osteichthyes
- d) Placodomi

1.17 Turtles and tortoises belong to order

- a) Squamata
- b) Chelonia
- c) Rhyncocephalia
- d) Crocodilia

1.18 Select the excretory product in class Aves?

- a) Urea
- b) Ammonia
- c) Uric acid
- d) Creatinine

1.19 Which one of the following features is not characteristic to all mammals?

- a) Presence of a diaphragm
- b) Presence of heterodont teeth
- c) Non-nucleated red blood cells
- d) Formation of placenta

1.20 Which of the following biomes is characterized by tall, broad-leaved evergreen trees and receives high rainfall throughout the year?

- a) Taiga
- b) Tropical rain forest
- c) Temperate Deciduous Forest
- d) Desert

1.21 Why is the troposphere important for living organisms?

- a) It contains the ozone layer that protects living organisms from UV radiation.
- b) It contains gases like oxygen, carbon dioxide, and nitrogen essential for life.
- c) It absorbs the majority of solar radiation.
- d) It contains the highest atmospheric pressure.

1.22 Which **ecological pyramid** cannot be inverted?

- a) Pyramid of numbers
- b) Pyramid of biomass
- c) Pyramid of energy
- d) Pyramid of trophic levels

1.23 Which of the following factors is **density-independent** in population?

- a) Competition for food
- b) Spread of diseases
- c) Weather changes
- d) Predation

1.24 What is the primary role of the **ozone layer** in the atmosphere?

- a) Preventing acid rain formation
- b) Regulating the global temperature
- c) Absorbing harmful UV radiation from the sun
- d) Balancing the CO₂ and O₂ levels

1.25 Which of the following patterns of distribution of population is **most common** in nature?

- a) Uniform distribution
- b) Random distribution
- c) Clumped distribution
- d) Isolated distribution

PART- 1—B- Structured Essay questions

1.B-1

(i) Give one function of the following organelles in an eukaryotic cell

(a) Endoplasmic Reticulum

(b) Ribosomes

(c) Mitochondria

(d) Lysosomes

(e) Golgi bodies

(ii) Write two differences that can be seen in cell division of plant cell and animal cell.

1.

2.

(iii) Name the five kingdoms proposed by Robert Whittaker in 1969, for classifying living organisms

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(iv) Complete the following table giving the molluscan classes relevant to given molluscan features.

Feature	class
1. Tusk shell	
2. Cap shaped shell	
3. Two valves	
4. Large ventral muscular foot	
5. Internal shell	

1B-2.

A student who studied marine fishes in, observed fish group with following features

1. Spindle shaped elongated body
2. Hetetocercal tail

According to these observations answer the following questions

- (i) Identify the class to which the above mentioned fishes belong.

- (ii) Give three other characteristic features of the class mentioned in Q.2 part (i)

- (iii) State the feeding pattern of these fishes

- (iv) Name the reproductive pattern of these fishes

1-B-3

State whether the characteristic features listed in the table are present or absent in the given vertebrate classes by putting "√" to indicate presence and "X" to indicate absence in the appropriate cell.

Characteristic feature	Amphibia	Reptilia	Aves	Mammalia
Skin with glands				
Mesonephric kidneys				
Heterodont teeth present				
Complete double circulation				
Lungs with Air sacs				

Part II- Essay type questions

Answer any three (03) questions

2. Describe Characteristics features of phylum Annelida and briefly explain the diversity within this phylum
3. Explain the structure and functions of different muscular tissues in animals.
- 4...Discuss characteristics features of Class Amphibia and briefly describe the unique features of different amphibian orders giving suitable examples.
- 5.(a) Briefly explain the nitrogen cycle with a suitable diagram.
(b) Describe the role of microbes in the nitrogen cycle.
6. Write short notes on any **two (02)** of the followings
 - (a) Nervous tissue
 - (b) Instinct/ Innate behavior
 - (c) Water pollution
 - (d) Ecological succession
