

THE OPEN UNIVERSITY OF SRI LANKA

ADVANCED CERTIFICATES IN SCIENCE PROGRAMME 2024/2025

LEVEL 2

ZYF2514 - BIOLOGY 4 (New Structure)

FINAL EXAMINATION

DURATION – THREE HOURS



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Date :2025.03.15

Time: 9.30 pm -12.30 pm

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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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## MCQ BOX

Ques.No	a	b	c	d
1.1				
1.2				
1.3				
1.4				
1.5				
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1.20				
1.21				
1.22				
1.23				
1.24				
1.25				

### Part I – Multiple choice questions

1.

1.1 What is the functional unit of the nervous system?

- a). Dendrite                      b). Neuron                      c). Reflex arc                      d). synapse

1.2 Which part of the brain controls balance of the body?

- a) Cerebrum                      c) Medulla Oblongata  
b). Cerebellum                      d). Thalamus

1.3 Where are neurotransmitters released in the nervous system?

- a). Synaptic cleft                      c). Axon Terminal  
b). Myelin Sheath                      d). post synaptic membrane

1.4 Schwann cell is seen in

- a) Myelinated neuron                      c) Non myelinated neuron  
b) Dendrites                      d) Both (b) and (c)

1.5. Which part of the brain is responsible for regulating body temperature?

- a). Cerebrum                      c) Thalamus  
b) Hypothalamus                      d) Medulla

1.6 What is the function of the thymus gland?

- a) Produce antibodies                      c) Produce red blood cells  
b) Mature and differentiate T lymphocytes                      d) Filter blood and store platelets

1.7 Which of the following neuron is entirely located in the spinal cord ?

- a) Motor neuron                      c) Sensory neuron  
b) Inter neuron                      d) a and b

1.8 What is the function of the corpus callosum in the brain?

- a). It controls voluntary muscle movements.                      c). It regulates emotions and motivation  
b). It connects the two hemispheres of the brain..                      d). It produces cerebrospinal fluid.

1.9 Which of the following statement is **correct** definition of term homeostasis ?

- a) The maintenance of a constant environment around animal body cells despite changes outside of the body.  
b) The control of involuntary organs by the automatic nervous system.  
c) The maintenance of a steady body temperature despite changes in temperature outside the body.  
d) The constant regulation of all metabolic processes inside the cells of all animals.

1.10 Layers in the wall of eyeballs from inside to outside are

- a) Retina, Chroid, & Sclerotic
- b) Sclerotic, Choroid & retina
- c) Chroid, Retina & Sclerotic
- d) Chroid, Sclerotic & Retina

1.11 Air pressure in the middle ear is controlled by

- a) external ear.
- b) eustachian tube.
- c) oval window
- d) round window

1.12 Posterior pituitary store and release hormone

- a) Oxytocin .
- b) Vasopressin.
- c) Growth hormone.
- d) None of the above.

1.13 In human body the main mineral corticoid is

- a) Adrenalin
- b) Aldosterone
- c) ADH
- d) Cortisol

1.14 Which of the following gland performs both **endocrine and exocrine** function?

- a) Thyroid gland
- b) Pituitary gland
- c) Pancreas
- d) Adrenal gland

1.15 The thigh of human body is supported by the bone

- a) Tibia
- b) Fibula
- c) Femur
- d) Humerus

1.16 What is the primary challenge for animals swimming in water?

- a) Supporting body weight.
- b) Overcoming friction
- c) Maintaining body temperature
- d) Conserving oxygen

1.17 Snakes achieve rapid crawling movement by,

- a) Peristalsis movement
- b) Undulating their bodies
- c) Jet propulsion
- d) Hydrostatic movement

1.18 How does hookworm infection primarily occur in humans?

- a). Through ingestion of contaminated water
- b). By walking barefoot on contaminated soil
- c). Through a mosquito bite
- d). By consuming uncooked meat

1.19 *Promecotheca cumingi* is a serious pest of,

- a) paddy cultivation
- b) coconut cultivation
- c) rubber cultivation
- d) tea cultivation

1.20 Which one of the following pest belongs to order Lepidoptera

- a) Maleng bug
- b) Yellow rice stem borer
- c) Paddy bug
- d) Brown plant hopper

1.21 Which of the following hormone stimulates the gall bladder to release bile juice

- a) Secretin
- b) Enterokinase
- c) Cholecystokinin
- d) Serotonin

1.22 Ammonia is the chief nitrogenous waste product of

- a) gastropod
- b). amphibians
- c) turtles
- d) amphibian larvae

1.23 Commensalism is an association between two species where,

- a) one species is harmed and other is benefited.
- b) both species are benefited.
- c) one species is benefited and other is unaffected.
- d) both species are harmed.

1.24 Pulmonary circulation is required for,

- a) nutrient supply to lungs.
- b) elimination of waste products from the lungs
- c) oxygenation of deoxygenated blood.
- d) nutrient supply to heart.

1.25 Which of the following invertebrates use tracheal tubes for respiration?

- a) Earthworms
- b) Insects
- c) Mollusks
- d) Jellyfish

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### Part I - B - Structured essay questions

#### 1.B - 1

i) State three main functions of the nervous systems

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ii) Name two types of nervous systems involved in nervous coordination of human body.

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iii). What is a synapse ?

Name two neuro transmitters involved at the synapse.

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iv) What is a hormone?

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v) State three differences between hormonal and nervous co-ordination in human body.

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vi) What is a Tropic hormone?

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vii) Give three trophic hormones which are secreted by Anterior pituitary and give one function of each.

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viii) Name the endocrine glands that are involved to secrete following hormones.

- a. Growth hormone -----
- b. Glucagon-----
- c. Thymosin -----
- d. Oxytocin -----

**1B-- 2**

i) Define the term Biodiversity

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ii) Give four reasons for loss of biodiversity

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iii) State two main ways to conserve the biodiversity

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iv) Define the following terms giving one example

a). Keystone species

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b) Umbrella species

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c) Flagship species

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d) Relict species

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**Part -II - Essay type questions**

**Answer any three (03) questions**

2. Explain how temperature is regulated in human body.
3. (a) With suitable diagram describe the structure of the human Ear.  
(b) Briefly explain the mechanism of hearing in the human ear.
4. Explain the feeding mechanisms in heterotrophic animals.
5. (a) Using suitable diagram explain the internal structure of human heart.  
(b) Briefly explain the functions of human blood.
6. Write short notes **any two (02)** of the followings
  - (a) Osmoregulation in aquatic animals
  - (b) Asexual reproduction in animals
  - (c) Respiratory structures in invertebrates
  - d) Diseases found in ornamental fish cultures.

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