

THE OPEN UNIVERSITY OF SRI LANKA
ADVANCED CERTIFICATE IN SCIENCE PROGRAMME - 2021
LEVEL 2 – ZYF2514
BIOLOGY 4
FINAL EXAMINATION
DURATION – THREE HOURS



Index No.....

Date : 03.01.2022

Time: 1.30 pm- 4.30 pm

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 Number -----

MCQ BOX

Ques. NO.	a	b	c	d
1.1				
1.2				
1.3				
1.4				
1.5				
1.6				
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1.25				

1. **PART -I -A- Multiple choice questions**

1.1 Nervous system of *Hydra* is composed of

- (a) ganglia chain
- (b) ventral nerve cord
- (c) network of nerves
- (d) brain

1.2 Right and left cerebral hemispheres are connected via,

- (a) corpus striatum
- (b) corpus callosum
- (c) thalamus
- (d) hippocampus

1.3 Which of the following ion helps in releasing Acetyl choline at synaptic cleft

- (a) Na^+
- (b) K^+
- (c) Ca^{2+}
- (d) PO_4^{3-}

1.4 In human eye, the space between cornea and lens is called,

- (a) aqueous humour.
- (b) vitreous humour.
- (c) choroid
- (d) retina

1.5 Select the **incorrect** statement regarding human ear

- (a) Eustachian tube connects the middle ear cavity with the pharynx
- (b) There are three tiny ear bones found in the middle ear.
- (c) Oval window is a part of cochlea.
- (d) The ear ossicle decreases the efficiency of transmission of sound waves to the inner ear.

1.6 Releasing hormones and inhibiting hormones are produced by

- (a) Pituitary
- (b) Thyroid
- (c) Thymus
- (d) Hypothalamus

1.7 Which of the following vertebrae type involved for the attachment with pelvic girdle

- (a) atlas vertebrae
- (b) coccyx vertebrae
- (c) sacrum
- (d) axis vertebrae

1.8 The number of cranial nerves in mammals is

- (a) 10
- (b) 12
- (c) 24
- (d) 36

1.9. In any ecosystem-the energy flow is always,

- (a) bidirectional.
- (b) multidirectional.
- (c) unidirectional.
- (d) cyclic pattern

1.10 Which of the following statements is **incorrect**?

- (a) Biosphere is a global ecosystem.
- (b) Transfer of energy in ecosystem explains in terms of food web and nutrient cycle.
- (c) Pond, lake and wetland are aquatic ecosystems.
- (d) Ecosystem is structural not functional unit of ecosystem

1.11 If succession occurs on bare rock it is known as,

- (a) primary succession
- (b) secondary succession
- (c) tertiary succession
- (d) Quaternary succession

1.12 Presence of mosses, rough grasses, short trees and lichens is characterized to the biome type,

- (a) Tundra forests
- (b) Grasslands
- (c) Chaparral forests
- (d) Taiga forests

1.13 In Sri Lanka, dry patana grasslands are seen in,

- (a) low country dry zone.
- (b) low country intermediate zone.
- (c) Uva basin.
- (d) Horton plains.

1.14 Which of the following is least affected by clearing of forests?

- (a) Biodiversity.
- (b) Global temperature
- (c) Rain fall pattern
- (d) Soil pH

1.15 The malarial fever occurs when

- (a) merozoites enter liver cell.
- (b) merozoites release from liver cell.
- (c) merozoites release from red blood cells.
- (d) all of the above.

1.16 Filariasis is a result of the infection of

- (a) Fleas
- (b) Bed bug
- (c) Leech
- (d) Nematode worm

1.17 Which of the following statement is incorrect regarding the hook worms?

- (a) The adult worms live in the lumen of the host's small intestine.
- (b) A human host is infected by rhabditiform larvae.
- (c) Serious effects of hookworm infection are development of anemia and protein deficiency.
- (d) Improper sanitation is major cause for hook worm infection.

1.18 Knee joint and elbow joint s are examples of

- (a) Saddle joint
- (b) Ball and socket joint
- (c) Pivot joint
- (d) Hinge Joint

1.19 "Elephant tusk" disease in rice is caused by

- (a) paddy bug
- (b) yellow rice stem borer
- (c) Melang bug
- (d) brown plant hopper.

1.20 *Catla*, *Labeo* and *Cirrhinus* all belong to the group of

- (a) Silver carps
- (b) bighead carps
- (c) grass carps
- (d) Indian carps

1.21 Example for a relict species is

- (a) Blue magpie
- (b) Giant panda
- (c) Lamp shell
- (d) Elephant

1.22 Acid rain is due to increase in atmospheric concentration of

- (a) Ozone and dust
- (b) CO₂ and CO
- (c) SO₂ and CO
- (d) SO₂ and NO₂

1.23 The most diverse oceanic communities are found in the,

- (a) abyssal zone.
- (b) littoral zone.
- (c) neritic zone.
- (d) oceanic zone.

1.24 Imprinting behavior was studied by

- (a) Tinbergen
- (b) Skinner
- (c) Lorenz
- (d) Pavlov

1.25 Select the **incorrect** statement regarding the mangrove forests

- (a) They consists of salt tolerant species and they grow along the coast
- (b) The wood of mangrove forest is soft and not durable.
- (c) They act as breeding ground for fishes
- (d) Vegetation includes *Rhizophoran*, *Avicinia* and *Brugera* etc.

PART I – B – Structured Essay questions

1.

i. Name the structural unit and functional unit of vertebrate nervous system

Structural unit -----

Functional unit -----

ii. Give one neuro-transmitter found in human nervous system

iii. What is the a structure made by Schwann cell ?

iv. What are the two components of autonomic nervous system

V Give two main differences between Axon and Dentrites

Axon

Dentritus

1.-----

2.-----

vi. State two types of ions which help to transmit nerve impulses

2.

i. Give three (03) characteristic features of hormones

1.-----

2.-----

3.-----

ii. What is meant by trophic hormone?

iii. Give two examples for trophic hormones.

1-----
2-----

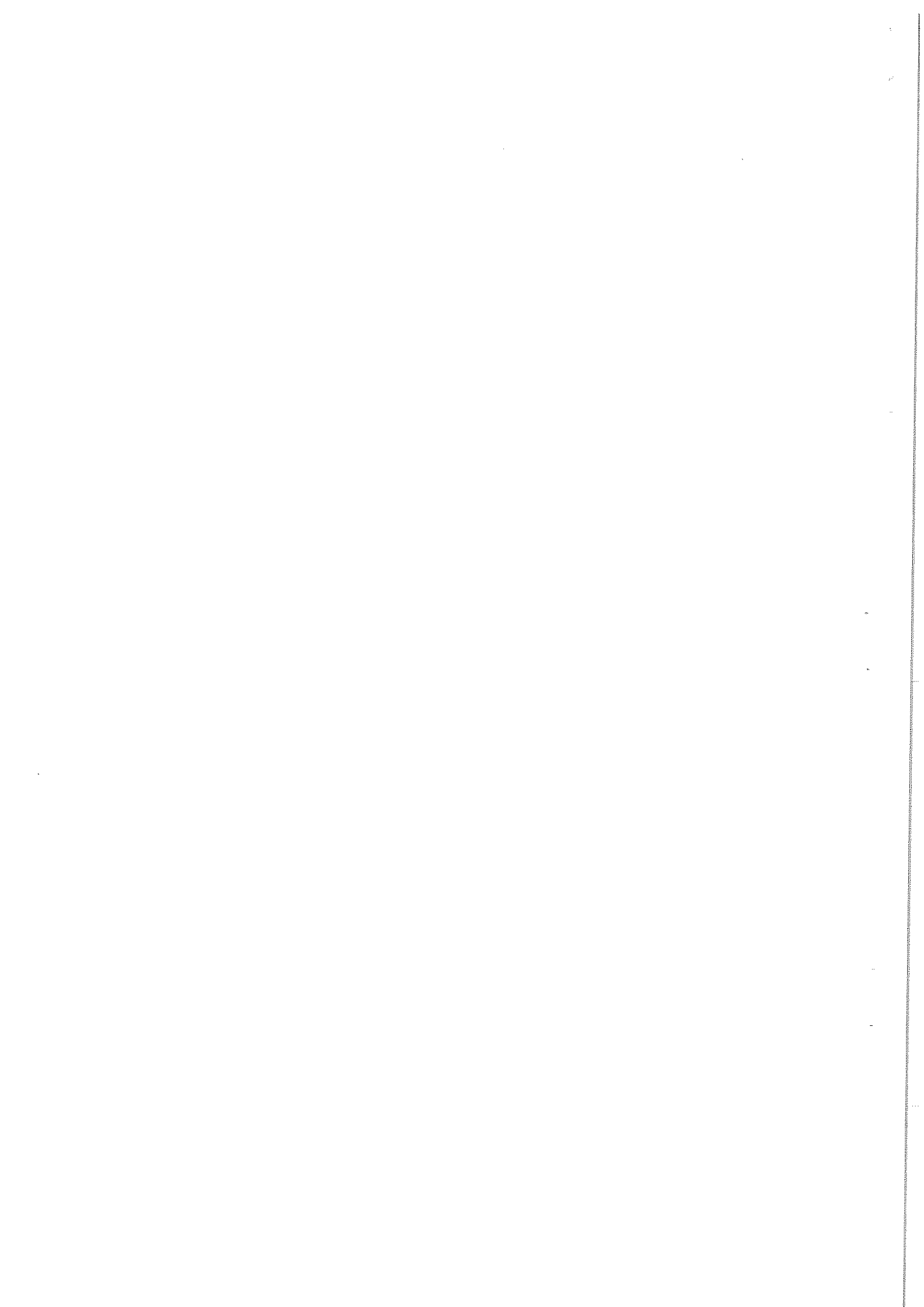
iv. Name two hormones which are synthesized in the hypothalamus and stored in the pituitary.

1----- 2-----

v. Name one function of thymus gland.

3. Give the Orders to which the following insect pests belong

- i. Yellow rice stem borer -----
- ii. Maleng bug -----
- iii. Brown plant hopper -----
- iv. Rice leaf folder -----
- v. Red weevil -----
- vi. Black beetle -----
- vii. Coconut leaf miner -----



PART -II - Essay type questions

Answer any **three (03)** questions.

2. Using a suitable diagram describe how nitrogen is cycled in nature.
3. (a) Briefly explain the structure of human skin.
(b) Describe how it regulate the temperature variations in human body.
4. (a) What is biodiversity?
(b) What are the causes for loss of biodiversity?
(c) Briefly explain the methods that can be used to conserve biodiversity.
5. Describe different locomotory patterns seen in animal kingdom.
6. Wite short notes on any **two (02)** of the following.
 - (a) Ecological pyramids
 - (b) Role of the liver in homeostasis
 - (c) Water pollution
 - (d) Significance of aquaculture industry.

