



THE OPEN UNIVERSITY OF SRI LANKA

**CREDIT CERTIFICATES FOR FOUNDATION PROGRAMME IN SCIENCE-
2018/2019**

LEVEL 2 – BZF 2502

BIOLOGY IV

FINAL EXAMINATION

DURATION – THREE HOURS

Date : 29.12.2019

Time: 1.30pm- 4.30 pm

The Question paper consists of two parts - **I and II**

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

- Answers for the Multiple Choice Questions in **part I** 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** 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 | | | | |
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PART I

1.-A

1.1 The pelvic girdle is firmly attached to a part of the vertebral column , called

- (a) atlas vertebrae (b) Coccyx vertebrae (c) Sacrum (d) axis vertebrae

1.2 Which one of the following is an example of immovable bone joints ?

- (a) Wrist (b) Elbow (c) Cranium bones (d) Ankle

1.3 Muscle are connected to bone by ,

- (a) collagen fibres. (b) ligaments. (c) tendons. (d) cartilage.

1.4 In human homeostatic control center is located in,

- (a) heart. (b) kidney. (c) pancrease. (d) brain.

1.5 Which of the following statement is **correct** definition of 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.

1.6 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.

1.7 Air pressure in the middle ear is controlled by

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

1.8 In mammals the corpus callosum connects

- (a) bone to a muscle. (c) two cerebral hemispheres
(b) bone to a bone. (d) two optic lobes.

1.9 The number of cranial nerves in a mammals are,

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

- 1.10 The semicircular canals of the inner ear aid in,
(a) detecting air bone vibrations
(b) maintaining balance.
(c) hearing.
(d) none of the above.
- 1.11 Which of the following is **not** a steroid hormone?
(a) Estrogen (c) Testosterone
(b) Parathormone (d) Progesterone
- 1.12 Which of the following is **true** about neural membrane?
(a) Different type of ion channels present
(b) Ion channels are selectively permeable
(c) Impermeable to negatively charged protein present in axoplasm
(d) All of the above
- 1.13 Posterior pituitary store and release hormone
(a) Oxytocin . (c) Growth hormone.
(b)TSH (d) None of the above.
- 1.14 Thymosin is,
(a) peptide hormone.
(b) secreted by pituitary.
(c) helps in RBC production.
(d) decreases WBC production.
15. Energy flow in ecosystem is
(a) bidirectional.
(b) multidirectional.
(c) unidirectional.
(d) cyclic pattern.
16. Identify the correct type of food chain :
- dead animal → blow fly maggots → common frog → snake
- (a) Decomposer food chain
(b) Detrital food chain
(c) grazing food chain
(d) Predator food chain
17. The number of lumbar vertebrae in human vertebral column is
(a) 12 (b) 7 (c) 5 (d) 2

18. Which of the following statements is correct regarding the life cycle of hook worm?
- (a) Adult worms live in the mosquitoes salivary glands.
 - (b) Human host is infected by rhabdiform stage
 - (c) Parasites are transmitted larval stages from host to host by mosquito vector
 - (d) *Necator americanus* is the most common hook worm around the world
19. Select the stage of malaria parasite, transmitted from mosquito to human.
- (a). sporozoite. (c). merozoite
 - (b). gametocyte.. (d). merozoite
20. *Promecotheca cumingi* is a major pest of
- (a) Cotton (b) Sunflower (c) Coconut (d) Paddy
21. Identify the fresh water teleost fish species
- (a) *Catla catla* (b) *Hilsha ilisha* (c) *Penaeus indicus* (d) Sharks and rays
22. Global warming can be controlled by,
- (a) reducing deforestation, cutting down use of fossil fuel.
 - (b) reducing reforestation, increasing the use of fossil fuel.
 - (c) increasing deforestation, slowing down the growth of human population.
 - (d) increasing deforestation, reducing efficiency of energy use.
23. Biodiversity hotspots are region of high,
- (a) rarity
 - (b) endemism.
 - (c) critically endangered population.
 - (d) diversity.
24. The formation of a climax community from an abandoned farm land is an example of
- (a) autogenic succession.
 - (b) allogenic succession.
 - (c) primary succession.
 - (d) secondary succession.
25. During repolarization of nerve,
- (a) K^+ gate closed and Na^+ gate open.
 - (b) Na^+ channels are closed K^+ channels are open.
 - (c) both gates remain open.
 - (d) both K^+ and Na^+ gates are closed

1-B Structured essay questions

(i) Name the main parts of the human brain

(ii) State three functions of the human nervous system

- 1.-----
- 2.-----
- 3.-----

(iii) What is the most abundant type of cells in the human brain.

(iv) What is a nerve impulse and why it is not conducted backwards in an axon?

(v) What is an animal hormone ?

(vi) Why is acetylcholine considered as a neurotransmitter and adrenalin considered as hormone?

- (vii) State three differences between hormonal coordination and nervous coordination.

- (viii) Name three trophic hormones which influence the menstrual cycle of women.

- (ix) Give four characteristic features of hormones.

1.-----
 2.-----
 3.-----
 4.-----

- (ix) Give the functions of following hormones;

- a. Growth hormone-----
 b. Oxytocin-----
 c. Follicle stimulating Hormone (FSH)-----
 d. Calcitonin-----
 e. Glucagon-----

- 2.(i) Name the four regions of the atmosphere ,in correct order from the surface of the earth to outer space.

1-----
 2-----
 3-----

4.-----

(ii) In which region of the atmosphere , the ozone layer is found?

(iii) What is the advantage of ozone layer ?

(iii) What is the main substance influence the destroy the ozone layer?

(iv) What are the adverse impacts of the destruction of the ozone layer ?

3. Give the taxonomical orders of following insect pests –

a. *Promocothea cumingi* -----

b. *Nilaparavata lugens* -----

c. *Baliothrips biformis* -----

d. *Rhynchophorus ferugineus* -----

e. *Oryctes rhinoceros* -----

PART II
Essay type questions

Answer any **three (03)** questions

2. Using suitable diagram explain how Nitrogen is cycled in nature.
3. Explain the role of hypothalamus in maintaining homeostasis in man.
4. Discuss the locomotory patterns seen in animals.
5. Write an essay on environmental pollution.
6. Write short notes on any **two (02)** of the following
 - a. Ecological pyramids
 - b. Environmental impact of shrimp farming in Sri Lanka.
 - c. Learned behaviour in animals.
 - d. Reflex action

