

**THE OPEN UNIVERSITY OF SRI LANKA**

**ADVANCED CERTIFICATES IN SCIENCE PROGRAMME 2021/2022**

**LEVEL 2 – ZYF2514**

**BIOLOGY IV**

**FINAL EXAMINATION**

**DURATION – THREE HOURS**



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**Date : 28.01.2023**

**Time: 9.30 am-12.30 pm**

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**Index No. :**

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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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Index No.-----

MCQ BOX

Ques.No	a	b	c	d
1.1				
1.2				
1.3				
1.4				
1.5				
1.6				
1.7				
1.8				
1.9				
1.10				
1.11				
1.12				
1.13				
1.14				
1.15				
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1.18				
1.19				
1.20				
1.21				
1.22				
1.23				
1.24				
1.25				

**Part -1- A- Multiple choice questions**

1.

1.1 Molluscan nerve system consists of

- (a) Ganglionic nerve ring                      (c) Network of nerves  
(b) Double ventral nerve cord                (d) Brain

1.2 Schwann cell is absent in

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

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

- (a)  $\text{Na}^+$             (b)  $\text{K}^+$             (c)  $\text{Ca}^+$             (d)  $\text{PO}_4^{3-}$

1.4 Aqueous humor is present

- (a) in front of the retina                        (c) behind the conjunctiva  
(b) in front of the cornea                        (d) in front of the lens

1.5 Resting membrane potential is maintained by

- (a) Hormones            (b) Neurotransmitters            (c) Ion pumps            (d) Non of these

1.6 The organ of Corti is a structure present in

- (a) external ear            (b) middle ear            (c) Semicircular canal            (d) Cochlea

1.7 In human body the main mineral corticoid is

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

1.8 Thymosin is responsible for,

- (a) increasing the blood sugar level                      (c) increasing blood calcium level  
(b) increasing production of T- lymphocytes                      (d) decreasing in blood RBC

1.9 Releasing hormones and inhibiting hormones are produced by

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

1.10 Number of bones in human face is

- (a) 12      (b) 30      (c) 40      (d) 14

1.11 The acromion process articulates with the

- (a) Scapula      (b) Clavicle      (c) Ribs      (d) Vertebral column

1.12 Pelvic girdle of human consists of

- (a) Ilium, ischium and pubis      (c) Coracoid, scapula and clavicle  
(b) Ilium, ischium and coracoid      (d) Ilium, coracoids and scapula

1.13 Select the correct statement regarding human ribs

- (a) They are short and curved bones.  
(b) Dorsal surface of ribs is deeply grooved.  
(c) There are 14 pairs of ribs.  
(d) All ribs articulate posteriorly with vertebral column

1.14 Select the correct statement regarding human ear

- (a) Its normal hearing range is 40- 20000 Hz  
(b) Incus is connected to the oval window  
(c) Pinna is composed of hyalin cartilage  
(d) Organ of corti is associated with the auditory function

1.15 An inverted pyramid of biomass is seen in

- (a) Forest ecosystem      (c) Grassland Ecosystem  
(b) Aquatic ecosystem      (d) Dessert

1.16 In the nutritional interactions methods, only one of the species is benefited in

- (a) Mutualism      (c) Parasitism and predation  
(b) Competition      (d) Commensalism

1.17 Which of the following factor does not contribute to global warming ?

- (a) Depletion of ozone layer.      (c) Growth of phytoplankton  
(b) Water vapour in the atmosphere      (d) Ozone in the lower atmosphere.

1.18 If succession occurs on bare rock , known as

- (a) primary succession                      (c) Tertiary succession  
(b) Secondary succession                      (d) Quaternary succession

1.19 Which of the following is an example for Ex situ conservation

- (a) National park      (b) Seed Bank      (c) Wildlife Sanctuary      (d) Sacred grove

1.20 *Aedes aegypti* is a vector for,

- (a) Both Dengue and yellow fever                      (c) Dengue fever  
(b) Yellow fever                      (d) Japanese encephalitis

1.21 *Nitrosomanas* is a

- (a) a chemoautotroph which converts  $N_2$  to  $NH_4^+$   
(b) a chemoautotroph which oxidises  $NH_4^+$  to  $NO_2^-$   
(c) a chemoautotroph which oxidises  $NH_4^+$  to  $NO_3^-$   
(d) a chemoautotroph which converts  $NO_3^-$  to  $NO_2^-$

1.22 Which one of the following pest belongs to order Lepidoptera

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

1.23 Select the freshwater fish type

- (a) Blue fin tuna      (b) Indian carp      (c ) Salaya      (d) Shark

1.24 *Promecothea cumingi* is a pest of

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

1.25 An example for flagship species is

- (a) Lamp shell,                      (c) Clown knife fish  
(b) The Bengal tiger                      (d) Gal pandia fish

**Part I - B- Structured essay questions**

1. Fig 01 represents the vertebral column of human body

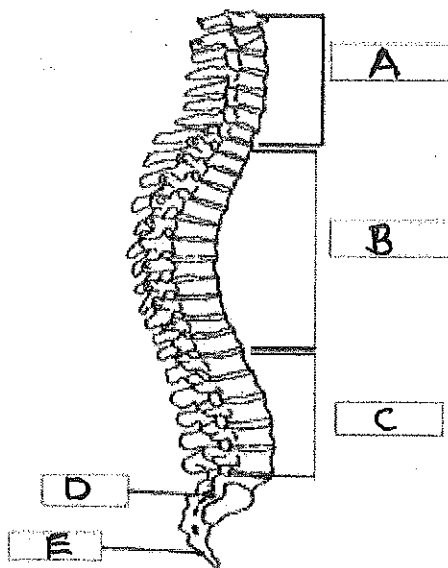


Fig. 01

(i) Label the given regions A, B, C, D and E

A ..... D .....  
B..... E.....  
C.....

(ii) How many vertebrae belong to each regions mentioned above (Qu i)

A..... D.....  
B..... E.....  
C.....

(iii) How many curvatures include in the adult human vertebral column

.....

(iv) Name the parts of a typical vertebrae

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.....  
.....

(v) Name the structure found in between two adjacent vertebrae and give the function of it.

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(vi) Give one example for following joints in human body

- (a). Ball and socket joint .....
- (b) Hing joint .....
- (c) Gliding joint .....
- (d) Pivot Joint .....

2.

(i) What are the major zones in fresh water ecosystem

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(ii) According to living habitat how freshwater organisms can be classified.

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(iii) How the freshwater bodies can be classified, considering the productivity

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(iv) What are the factors effect to recognize the different zones in the ocean

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(v) Name major zones in the ocean

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## Part II- Essay type questions

Answer any three (03) questions

2.(a) Explain the process of regulation of blood glucose level in human body?

(b) Briefly explain the role of the liver in homeostasis.

3. (a) Describe the structure of human brain

(b) Briefly explain the functions of different parts of the brain

4. (a) Describe the life cycle of *Necator americanus*

(b) Explain how infection of *Necator americanus* could be controlled.

5. (a) What is meant by “population of animals”

(b) Describe the characteristics of animal populations

6. Write short notes any two (02) of the followings

(a) Learned behavior

(b) Locomotory patterns in terrestrial animals

(c) Significance of aquaculture industry in Sri Lanka

(d) Ecological pyramids

