

THE OPEN UNIVERSITY OF SRI LANKA

ADVANCED CERTIFICATES IN SCIENCE PROGRAMME 2023

LEVEL 2 – ZYF2514

BIOLOGY IV

FINAL EXAMINATION

DURATION – THREE HOURS



Date :28.01.2024

Time: 9.30 am- 12.30 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				
1.6				
1.7				
1.8				
1.9				
1.10				
1.11				
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1.19				
1.20				
1.21				
1.22				
1.23				
1.24				
1.25				

PART I - A – Multiple choice Questions

1.

1.1 Hypothalamus controls

- (a) body temperature
- (b) gastric secretion
- (c) respiration
- (d) All of these

1.2 Which of the following skin receptor is responsible foetouch sensation

- (a) Meissner corpuscles
- (b) Ruffini corpuscles
- (c) Pacinian corpuscles
- (d) Krause's end bulbs

1.3 Releasing hormones and inhibiting hormones are produced by

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

1. 4 Unidirectional transmissionof nerve impulse is maintained by

- (a)Na and K pump
- (b) Neurotransmitters
- (c) Myelin sheath
- (d) membrane polarity

1.5The second layer of the eye ball is called

- (a) Choroid
- (b) Retina
- (c) Cornea
- (d) Sclera

1.6 The diameter of eye pupil is regulated by

- (a) lens
- (b) ciliary muscles
- (c) muscles of iris
- (d) All of these.

1.7The structure of the human ear responsible to maintain the equilibrium of the human body is.

- (a) sacculus and cochlea
- (b) semicircular canals and utriculus
- (c) Eustachian tube
- (d) ear ossicles

1.8 Select the correct matching statement regarding hormone secretion cells

- (a) Interstitial cells- testosterone
- (b) α cells – Insulin
- (c) β cells - Glucogon
- (d) Follicular cells- LH hormone

1.9 Sporozoites of the malaria parasite can be found

- (a) red blood corpuscles of huma suffering from malaria
- (b) spleen of infected human

(c) salivary glands of fleshy female Anopheles mosquito.

(d) saliva of infected female Anopheles mosquito

1.10 Sarcolemma is a outer membrane found in

(a) nerve fibre

(c) skeletal muscle fibre

(b) cardiac muscle

(d) smooth muscle fibre

1.11 The number of lumbar vertebrae in human vertebral column is

(a) 12

(b) 7

(c) 5

(d) 2

1.12 The acromion process of the pectoral girdle articulated with the

(a) Scapula

(b) Clavicle

(c) Ribs

(d) Vertebral column

1.13 Which of the following structure is not included in the appendicular skeletal system of human body

(a) Humerus

(c) Cervical vertebrae

(b) Fibula

(d) Pelvic girdle

1.14 Suture joints found between

(a) Parietals of skull

(c) Glenoid cavity and pectoral girdle

(b) Humerus and radius -ulna

(d) Thumb and metatarsal

1.15 Ball and socket joint can be seen in

(a) wrist

(b) fingers

(c) neck

(d) shoulders

1.16 The interrelationship between Shark and Remora is referred as

(a) Neutralism

(c) Commensalism

(b) Mutualism

(d) Parasitism

1.17 The most important atmosphere region for preventing living organisms by harmful ultra rays is

(a) Stratosphere

(c) Troposphere

(b) Thermosphere

(d) Mesosphere

1.18 Which one of the following animal group possess an exoskeleton

(a) Chordata

(b) Aves

(c) Nematoda

(d) Arthropoda

1.19 In human body the main glucocorticoid is

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

1.20 Which of the following animal is considered as a relict species

- (a) Salamander (d) Turtle
(b) *Ichthyophis* (e) Chiton

1.21 Identify the food chain that is operated by bacteria and fungi

- (a) Grazing food chain (c) Parasitic food chain
(b) Detritus food chain (d) All of these

1.22 *Nilaparavatalugens* belongs to Order

- (a) Coleoptera (c) Thysanoptera
(b) Hemiptera (d) Diptera

1.23 Which of the following pest was completely controlled by using biological control

- (a) *Oryctus rhinoceros* (c) *Promocothea cumingi*
(b) *Rhynchopors ferruginus* (d) *Dimmokia javanica*

1.24 Select the correct statement regarding the paddy bug

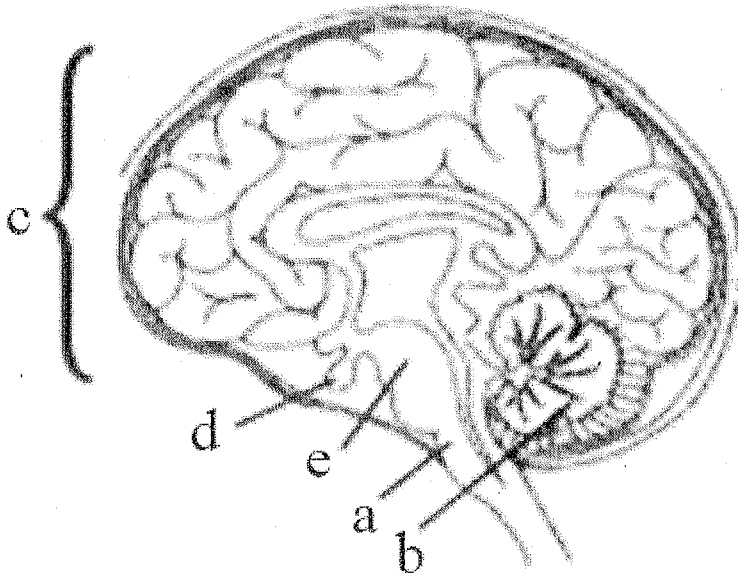
- (a) It lays eggs on the leaves of paddy plant
(b) It is mainly harmful to young paddy plants
(c) It can be controlled by using the trap crops
(d) It is harmful only during the nymphal stages

1.25 Which of the following is not an Ex-situ conservation

- (a) Zoos (b) Nature reserve (c) Aquaria (d) Plant collections

PART -1-B- Structured essay questions

1 Figure 01 shows the structure of human brain



1.1 Name the structures labelled as a, b, c, d, and e

a-----

d-----

b-----

e-----

c-----

1.2 Name the structures responsible for the following functions of human brain you identified in the above question 1.1

i Memory and intelligence -----

ii. Control center for Homeostasis -----

iii Voluntary skeletal muscle activities -----

iv Automatic control center for heart beat -----

1.2 What is cerebro-spinal fluid & give its function

1.3 How many pairs of cranial nerves and spinal nerves in human body

1.4 What is meant by Trophic hormone ?

1.5 Name two trophic hormones that is secreted by structure 'd'

2.. A _ D represent infectious diseases found in human population

A. - Malaria

C - Filaria

B - Dengue

D- Hook worm

2.1 Indicate the animal group of parasite which causes the above mentioned diseases.

A ----- C -----

B ----- D -----

2.2 Select the vector involved in diseases A- D

2.3 Give the names of the vectors involved in above mentioned diseases.

2.4 What are the larval stages seen in the parasitic life cycle of disease D

2.5 Briefly explain main control methods of disease D

Part II- Essay type questions

Answer any Three (03) Questions

2. (a) What is Homeostasis ?
(b) Explain how temperature is regulated in human body
(c) What is role of liver in homeostasis?
3. (a) What is meant by aquaculture?
(b) What are the significance of aquaculture industry
(d) What are factors that should be considered when selecting species for aquaculture farming
4. (a) What are the main biomes in the world ?
(b) Describe main features of any four biomes with reference to distribution ,rain fall and special characteristic features of vegetation.
5. (a) Describe the basic structure of a Neuron.
(b) Explain different types of nervous systems in invertebrates.
6. Write short notes any two (02) of the following topics
(a) Different types of locomotory patterns seen in animals
(b) Innate behavior
(c) Loss of biodiversity
(d) Ecological pyramids
