

THE OPEN UNIVERSITY OF SRI LANKA
ADVANCED CERTIFICATE IN SCIENCE PROGRAMME - 2021
LEVEL 2 – ZYF2512
BIOLOGY 3
FINAL EXAMINATION
DURATION – THREE HOURS



Index No.

Date : 03.01.2022

Time: 9.30 am- 12.30 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				
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(PART I – A) Multiple choice questions

Qu. 1

- 1.1 Which of the following statement is **incorrect** regarding prokaryotic cells
- (a) they do not have mitochondria
 - (b) their cell walls are composed of peptidoglycan
 - (c) DNA and protein combined to form Chromatin
 - (d) they do not possess cytoskeleton.
- 1.1 Which of the following statements is incorrect regarding lysosomes?
- (a) They are derived from Golgi complex.
 - (b) They are double membrane bound organelles.
 - (c) They contain different types of digestive enzymes.
 - (d) They are found only in eukaryotic cells.
- 1.2 A simple squamous epithelium in human body is found in the
- (a) epidermis and buccal cavity.
 - (b) urinary bladder and bowman's capsule
 - (c) ducts of sweat glands and ducts of salivary glands.
 - (d) alveoli and blood capillaries.
- 1.4 Sebaceous gland of human skin can be categorized as a
- (a) Simple tubular gland
 - (b)Compound tubular gland
 - (c) Simple branched alveolar gland
 - (d) Compound alveolar gland
- 1.5 Cuboidal epithelium can be found in ,
- (a) distal convoluted tubule.
 - (b) proximal convoluted tubule.
 - (c) Henle's loop..
 - (d) both (a) and (b)
- 1.6 Select the component not seen in the bone tissue.
- (a) collagen fibers
 - (b) haversian system
 - (c) matrix with chondrotine
 - (d). blood vessels
- 1.7. Which one of the following is the most distinctive character of sponges?
- (a) They are unicellular
 - (b) They are all marine

(c) They possess special cells called choanocytes

(d) They reproduce asexually

1.8 Excretory organs of Platyhelminthes are,

(a) kidneys.

(b) nephridia.

(c) flame cells.

(d) Malpighian tubules

1.9 Locomotion in earthworm is directly facilitated by

(a) mucous secreted by epithelium.

(b) segmentation of the body.

(c) rhythmic contraction of individual segments.

(d) setae.

1.10 Main excretory organs of insects are,

(a) nephridia

(b) kidneys

(c) Malpighian tubules

(d) Fat bodies

1.11. Which one of the following digestive juices do not have digestive enzymes?

(a) Gastric juice

(b) Pancreatic juice

(c) Bile juice

(d) Saliva

1.12 Digestion may be defined as,

(a) breakdown of complex food material into simpler compounds.

(b) breakdown of complex food material into simpler compounds and subsequent absorption.

(c) only absorption of food materials.

(d) utilization of food materials at cellular level.

1.13. Which one of the following statements is **incorrect** regarding blood circulatory systems?

- (a) All vertebrates have a closed circulatory system
- (b) Presence of a blood circulatory system is a characteristic feature of all animals.
- (c) All animals that have double circulation, possess a ventral muscular heart.
- (d) Presence of a single blood circulatory system is unique to all fishes

1.14 Which one of the following is not an enzyme of pancreatic juice?

- (a) Pepsin
- (b) Trypsin
- (c) Chymotrypsin
- (d) Enterokinase

1.15 An adult animal collected from a terrestrial environment showed the following features.

- (1). Dorsoventrally flattened body
- (2). Head bears a pair of antennae
- (3). Respire by trachea
- (4). Each segments of trunk bear a pair of legs.

This animal can be classified under the class

- (a) Polytcheata
- (b) Insecta
- (c) Chilopoda
- (d) Diplopoda

1.16 *Giardia intestinalis* is a

- (a) free living ciliophoran
- (b) endo parasitic rhizopod
- (c) autotrophic protistan
- (d) endo parasitic mastigophoran

1.17 Which of the following is absent in Glomerular filtrate?

- (a) albumin
- (b) glucose
- (c) NaCl
- (d) creatinine

1.18 Which one of the following type of cells lacks nucleus?

- (a) RBC
- (b) Neutrophils
- (c) Eosinophils
- (d) Monocytes

1.19 .Open blood circulatory system is found in

- (a) Arthropods and molluscs
- (b) Annelids and Chordates
- (c) Annelids and Arthropods
- (d) Fishes and molluscs

1.20 Coxal glands are excretory organ of,

- (a) spiders and scorpion.
- (b) insects.
- (c) annelids.
- (d) molluscs

1.21 Which of the following is not a function of the respiratory system?

- (a) Regulate blood pH
- (b) Helps in gaseous exchange
- (c) Protection against blood loss
- (d) Contains receptors for the sense of smell

1.22 Which of the following respiratory systems is not closely associated with a blood supply?

- (a) Vertebrate lungs
- (b) Fish gills
- (c) Tracheal systems in insect
- (d) The skin of earthworms

1.23 Which one of the following **does not** contribute to the breathing movements in mammals?

- (a) Ribs
- (b) Diaphragm

(c) Sternum

(d) Larynx

1.24 Which of the following statements is **incorrect** regarding animal reproduction?

(a) All vertebrates and some invertebrates are dioecious animals.

(b) External fertilization is seen in, most bony fishes and amphibians ..

(c) hermaphroditic animals do not have a higher reproductive potential.

(d) In viviparity-young ones develop within the mother obtain nourishment directly from mother's blood.

1.25 Which one of the following is **not** under Darwin's theory of natural selection?

(a) Over production

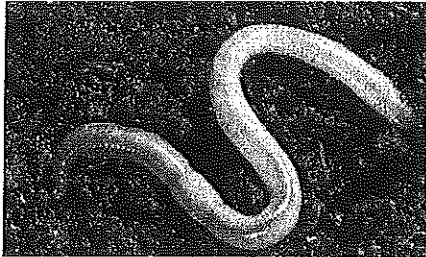
(b) Survival of the fittest

(c) Causes of variation

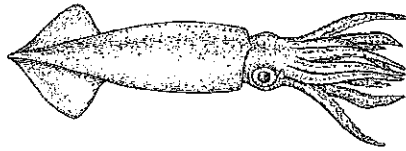
(d) Struggle for existence

(PART 1 - B) Structured essay questions

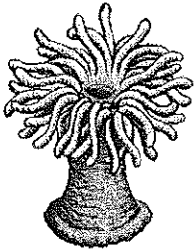
1. The questions (i - iv) are based on the following animals A - E



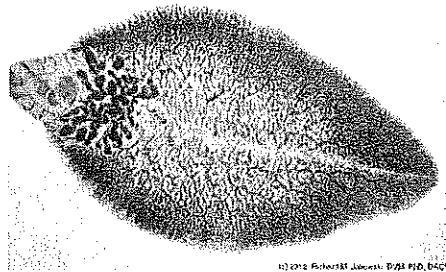
A



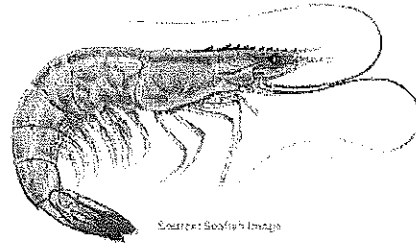
B



C



D



E

i. Name the phyla to which the animals A to E belong to.

A ----- D -----

B ----- E -----

C -----

ii. State two unique features of the phyla to which A and C belong.

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

iii. State the mode of nutrition of animals B and D

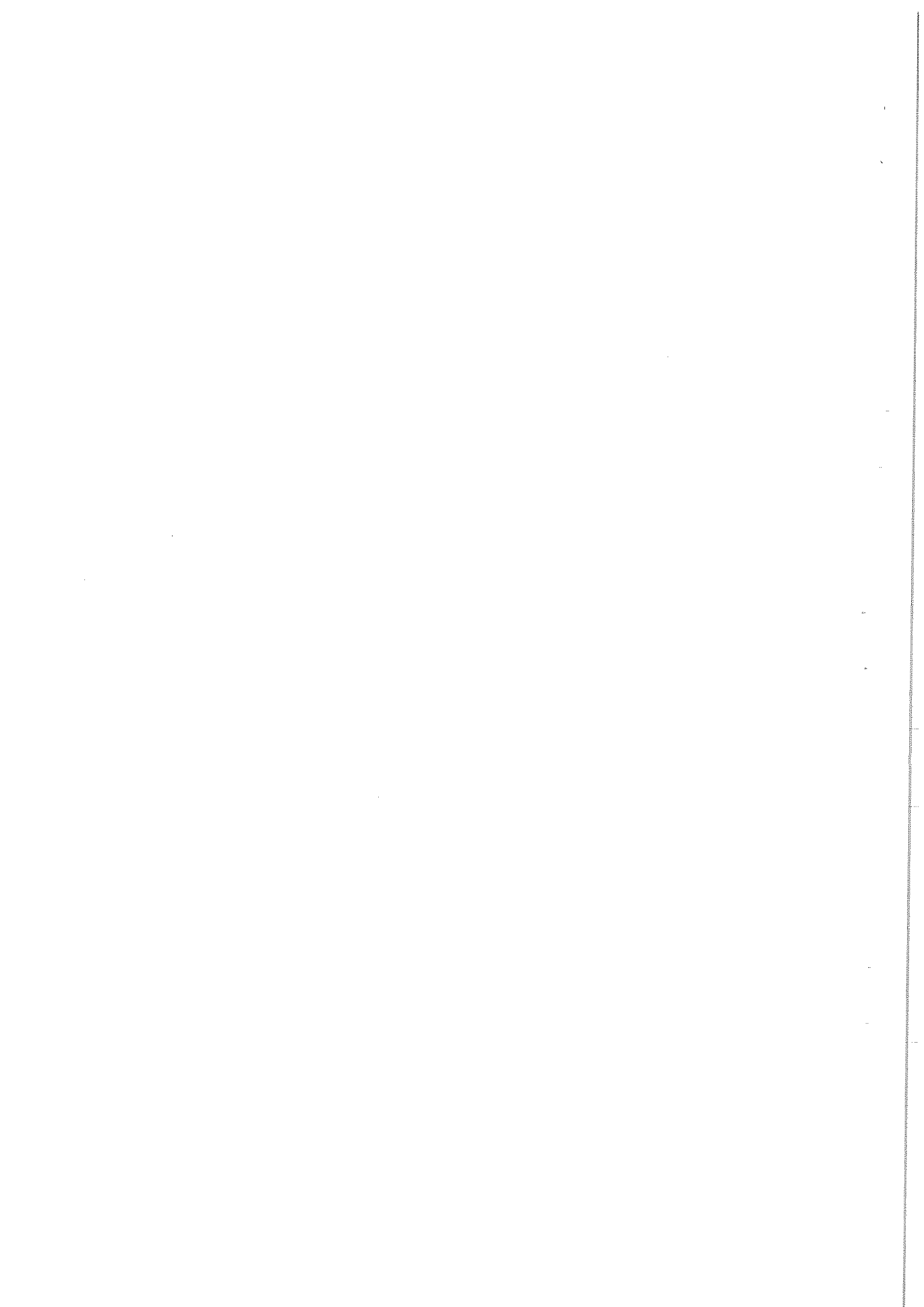
B -----

D -----

iv. Name other classes of phylum in which E belong to.

2. Mention the phylum in which the following characteristic features are present.

- a. The highest degree of polymorphism -----
- b. Acoelomate body plan present and do not
have circulatory and respiratory systems -----
- c. Presence of pseudocoelom body cavity -----
- d. Presence of hermaphroditic reproduction -----
- e. Body fluid acts as a hydrostatic skeleton -----
- f. Presence of spicules and osculum -----
- g. Presence of water vascular system -----



PART II- Essay type questions

Answer any **three (03)** questions

2. (a) List the characteristics features of phylum Mollusca.
(b) Name the classes of this phylum and briefly explain characteristics features of these classes.
3. (a) Explain the structure of human Nephron.
(b) Briefly discuss the process of urine formation in human body.
4. (a) What is meant by Enzymes.
(b) Mentioned the place /places where the following digestive enzymes are producing in human body and state their functions.
 - i. Pepsin iii. Tripsin v. Amylase
 - ii. Lipase iv. Lactase vi. Sucrease
5. (a) What are the main properties of Muscular tissue?
(b) Describe the structure of human skeletal muscle fiber.
(c) How it differentiate from a smooth muscle fibre.
6. Write short notes on any **two (02)** of the following
 - (a) Asexual reproduction methods in invertebrates.
 - (b) Respiratory structures found in animals
 - (c) Nervous tissue
 - (d) Characteristic features of class Aves

