

THE OPEN UNIVERSITY OF SRI LANKA  
B.Sc DEGREE PROGRAMME – LEVEL 4  
FINAL EXAMINATION 2017/2018  
COURSE CODE – ZLU2280  
COURSE TITLE – ANIMAL FORM AND FUNCTION  
DURATION – THREE HOURS



Index Number .....

Date : 10<sup>th</sup> April 2019

Time : 9.30 am – 12.30 pm

### Instructions

- This question paper has two parts , **Part A** and **Part B**.
- **Part A** , structured essay question, is compulsory and answers should be written in the space given in question paper.
- Answers for **Part B** should be written in answer books/papers.
- Please hand over both **Part A** and **Part B**.

00 Human dig  
i. Give two

**THE OPEN UNIVERSITY OF SRI LANKA**  
**B.Sc DEGREE PROGRAMME – LEVEL 4**  
**FINAL EXAMINATION 2017/2018**  
**COURSE CODE – ZLU2280**  
**COURSE TITLE – ANIMAL FORM AND FUNCTION**  
**DURATION – THREE HOURS**

Index Number .....

Date : 10<sup>th</sup> April 2019

Time : 9.30 am – 12.30 pm

**Part A**

**Question 1. (100 marks)**

1. During the course of evolution of animals, the digestive system of vertebrates has developed into a complex system.

1.1. Give two reasons why vertebrates need a well developed digestive system.

-----  
-----  
-----  
-----  
-----

(4 marks)

1.2. Write four major processes of feeding of vertebrates and give a definition for each process.

| Process | Definition |
|---------|------------|
|         |            |
|         |            |
|         |            |
|         |            |

(8 marks)

80

Human digestive tract is compartmentalized.

i. Give two reasons for compartmentalization of the digestive track.

-----  
-----  
-----  
-----  
-----  
-----

(2 marks)

ii. What are the accessory structures and organs that compose the digestive system ?

1 -----  
2 -----  
3 -----  
4 -----  
5 -----

(5 marks)

iii. Name the glands present in mouth and write their major functions.

-----  
-----  
-----  
-----  
-----

(4 marks)

iv. Explain why the epithelial layer of the mouth and oesophagus are covered with stratified squamous layer while simple columnar covers the other regions of the digestive tract.

-----  
-----  
-----  
-----  
-----  
-----  
-----

(5 marks)

v. Gastric glands in the stomach secrete four kinds of secretions. Name gland cells and their respective secretions.

|   | Secretory cells | Name of secretion |
|---|-----------------|-------------------|
| 1 |                 |                   |
| 2 |                 |                   |
| 3 |                 |                   |
| 4 |                 |                   |

(8 Marks)

1.4. Describe how the surface and wall of the stomach are prevented from being digested by gastric juice.

-----

-----

-----

-----

-----

(2 marks)

1.5. What is the chym action that takes place in the stomach ?

-----

-----

-----

-----

-----

(3 marks)

1.6. Food is digested in acidic condition in the stomach. Describe how acidic condition is formed inside the stomach.

-----

-----

-----

-----

-----

-----

(3 marks)

00

What is the enzyme present in gastric juice in infants for coagulation of milk ?

(1 mark)

1.8. Absorption of digested food mostly takes place in the small intestine. Name the special structures present in small intestine for absorption.

(1 mark)

1.9. Mention five different specific adaptive features of the structure that you mentioned in 1.8. for its efficient functioning.

i-----

ii-----

iii-----

iv-----

v-----

(10 marks)

1.10. Describe how fatty-acids are absorbed into the circulatory system in the small intestine.

(5 marks)

1.11. In the large intestine, mechanical digestion and chemical digestion take place.

1.11.a. Describe the mechanical digestion and its advantage.

(4 marks)

1.11.b. Describe the chemical digestion that takes place in the large intestine.

-----  
-----  
-----  
-----  
-----  
-----

(4 marks)

1.11.c. What is the disease condition that is caused by lack of water in ingested food. ?

-----  
-----

(1 mark)

1.12. a. A stomach of a ruminant has specialized 4 chambers for digestion. Illustrate the different chambers of the stomach of a ruminant below.

(6 marks)

1.12.b. Write the main functions of each chamber that you mentioned in 1.12.a..

| Name of the chamber | Main function |
|---------------------|---------------|
|                     |               |
|                     |               |
|                     |               |
|                     |               |

(4 marks)

00

2.c. Write four advantages of having four chambers in a ruminant's stomach.

-----  
-----  
-----  
-----  
-----

(8 marks)

1.12.d. What is the major difference in digestion process between ruminants and non-ruminant herbivores ?

-----  
-----  
-----  
-----  
-----

(4 marks)

1.12.e. What are the advantages of intestinal fermentation which occurs in non-ruminant herbivorous mammals ?

-----  
-----  
-----  
-----  
-----  
-----

(4 marks)

1.12.f. Give two examples for non-ruminants who have intestinal fermentation.

-----  
-----

(2 marks)

1.12.g. Describe the phenomenon of coprophagy

-----  
-----  
-----  
-----  
-----

(2 marks)  
(Total 100)

THE OPEN UNIVERSITY OF SRI LANKA  
 Sc DEGREE PROGRAMME – LEVEL 4  
 FINAL EXAMINATION 2017/2018  
 COURSE CODE – ZLU2280  
 COURSE TITLE – ANIMAL FORM AND FUNCTION  
 DURATION – THREE HOURS

Date : 10<sup>th</sup> April 2019

Time : 9.30 am – 12.30 pm

**PART B**

Answer any *four* (4) questions.

2. Carbohydrates provide more than 50% of required energy for the body.
- 2.1. Describe the main role of carbohydrate in the body (15 marks)
- 2.3. Define the term *cellular respiration*. (5 marks)
- 2.2. Briefly describe the process of anaerobic respiration that takes place in a living cell (75 marks)
- (Total 100 marks)**
3. Different type of muscles in human body perform different functions.
- 3.1. Describe principal characteristics of a muscle tissue (8 marks)
- 3.2. Describe five major differences between smooth muscle and skeletal muscle (12 marks)
- 3.3. Describe briefly how skeletal muscles work in the human body. (80 marks)
- (Total 100 marks)**
4. Multicellular animals require a circulatory system.
- 4.1. Explain why multicellular animals require a circulatory system. (10 marks)
- 4.2. Describe different types of heart that changed the structure during the evolution of animals. (40 marks)
- 4.3. Describe significance of the structural changes on the hearts of terrestrial vertebrates (20 marks)
- 4.4. Compare the open circulatory system with closed circulatory system. (30 marks)
- (Total 100 marks)**
5. Some of the functions of the human body are coordinated and regulated by hormones.
- 5.1. Define the term 'Hormone' (5 marks)
- 5.2. List out all the reproductive hormones that are produced in the human body. (20 marks)
- 4.2. Describe the role of hormones in relation to the sequential changes that occur in uterus of a non pregnant woman. (75 marks)
- (Total 100 marks)**
6. Write short notes on any two (2) of the following.
- a. Propagation of impulse along axon
- b. Acid base balance in the human body
- c. Defense system in the human body
- d. Factors affecting oxygen dissociation curve (each 50 marks)
- (Total 100 marks)**
- 7.
- 7.1. Define the term cardiac cycle (5 marks)
- 7.2. Describe the cardiac cycle with necessary illustrations. (50 marks)
- 7.3. Briefly explain the importance of cardiac conducting system. (30 marks)
- 7.4. Discuss the relationship between cardiac output and heart rate. (15 marks)
- (Total 100 marks)**