THE OPEN UNIVERSITY OF SRI LANKA
B.Sc DEGREE PROGRAMME – LEVEL 4
FINAL EXAMINATON 2017/2018
COURSE CODE – ZYU4300
COURSE TITLE – ANIMAL FORM AND FUNCTION
DURATION – TWO HOURS

Index Number ....

Date : 10th April 2019	Time : 9.30 am – 11.30 am

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**.

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Index Number ....

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Part A (Compulsory)

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 majour processes of feeding of vertebrates and give a definition for each process.

Process	Definition

(8 marks)

2

1.3. 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 majour functions.

(4 marks)

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

(5 marks)

3

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 chyim 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)

1.7. 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--

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ii---

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iii--

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iv--

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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)

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

(8 marks)

1.12.d. What is the majour difference in digestion process between ruminants and non-ruminants 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 coprohagy

(2 marks)
(Total 100)

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PART B

Answer any *three (3)* questions.

2. Different type of muscles in the human body perform different functions.
    2.1. Describe principal characteristics of a muscle tissue   (8 makes)
    2.2. Describe five majour differences between smooth muscle and skeletal muscle   (12 marks)
    2.3. Describe briefly how skeletal muscles work in the human body .   (80 marks)
                                                                                                    (Total 100 marks)

3. Multicellular animals require a circulatory system.
    3.1. Explain why multicellular animals require a circulatory system.   (10 marks)
    3.2. Describe different types of heart that changed the structure during the evolution of animals.
                                                                                                    (40 marks)
    3.3. Describe significance of the structural changes of hearts for terrestrial vertebrates.   (20 marks)
    3.4. Compare the open circulatory system with closed circulatory system.   (30 marks)
                                                                                                    (Total 100 marks)

4. Some of the functions of the human body are coordinated and regulated by hormones.
    4.1. Define the term 'Hormone'   (5 marks)
    4.2. 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)
5.
    5.1. Define the term cardiac cycle   (5 marks)
    5.2. Describe the cardiac cycle with necessary illustrations.   (50 marks)
    5.3. Briefly explain the importance of cardiac conducting system.   (30 marks)
    5.4. Discuss the relationship between cardiac output and heart rate.   (15 marks)
                                                                                                    (Total 100 marks)