UNIVERSITY OF RUHUNA

B.SC. GENERAL DEGREE LEVEL I (SEMESTER I) EXAMINATION –June 2023

UBJECT : ZOOLOGY

OURSE UNIT: ZOO 1102 – Core Zoology

Time: 01 ½ hours

Index Number: .....

Answer **Part A** and **any two** questions from **Part B**.

Illegible handwriting would be penalized.

Question No.		Marks
Part A	1	
	2	
	3	
	4	
Part B	1	
	2	
	3	
	4	
Assessment		
TOTAL		

Part A: Answer all. (50 minutes)

1.

i). Briefly describe **one piece of evidence** to support that Earth-bound life originated more than 3.5 billion years ago.

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ii). What is meant by **panspermia** theory?

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iii). Mention how a **proton gradient** is generated at alkaline hydrothermal vents.

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iv). Write **three assumptions** of the Darwinian theory of evolution.

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v). Mention **two** major differences between anagenesis and cladogenesis (*mention both sides*).

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(10 ma

2.

i). Give **two reasons** why most cells are generally **small in size**.

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ii). State different **phases** of aerobic respiration. Mention **where** each of those phases occurs in an eukaryotic cell.

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iii) Mention the **phases of mitotic cell cycle**, and state **one specific event** that occurs in each phase.

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iv). (a) Explain why **facilitated diffusion** is needed in an animal cell.

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(b) Mention the nature of the **two major types** of facilitated diffusion.

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3.

i). (a)

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ii).

(a) Mention the **two major steps** in the expression of a **protein-coding gene**.

.....

(b) Mention **what is happening** during each of those two steps.

.....

.....

(10 marks)

3.

i). (a) Name any **four specialized structures** found on the surface of epithelial tissues.

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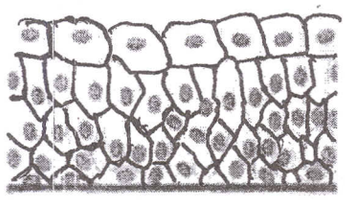
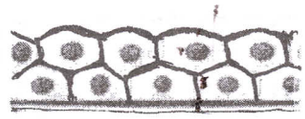
....

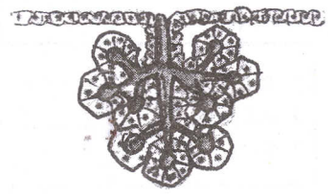
ii). (a) Name the **tissue type** in Figures **A, B,** and **C.**



A



B



C

A: .....

B: .....

C: .....

(b) From the above-mentioned tissues (A, B, C), name the **tissue type** found in **both** the bladder and the esophagus.

.....

iii). (a) Name **three** types of fiber/s found in connective tissues.

....

(b) Mention **one** function of **perichondrium**.

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(c) Mention **three** functions of neuroglial cells.

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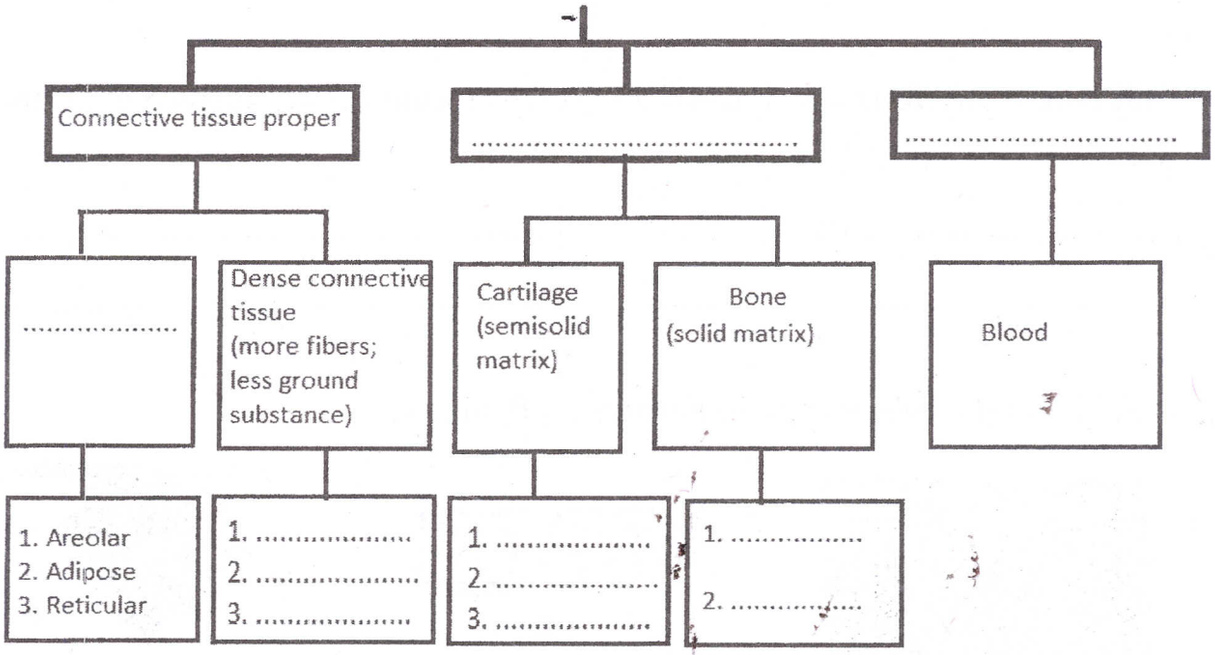
iv). Figure given below shows the classification of **connective tissues**. Fill in the blanks with **suitable histological terms**.



v). Mention any two differences between gray matter and white matter.

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(10 Marks)

4.

i). (a) Name the **three** phases of oogenesis.

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(b) What happens to an egg in the **second phase of oogenesis**?

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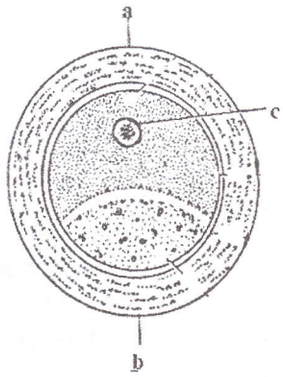
ii). (a) Label **a, b** & **c** of the following diagram.



a) .....

b) .....

c) .....

(b) What is the **type** of this egg? .....

iii). List **any three** causes of ovulation.

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iv). (a) What are the **two major events** that happen during **acrosome reaction**?

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.....

(b). Mention the **importance** of the following in fertilization.

Sperm capacitation: .....

Cortical reaction: .....

v). (a) Write **any two** differences between blastula and gastrula in the embryonic development process.

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(10 Marks)

Continued to Part B..

Part B:

Answer <u>any two</u> questions only. **(40 minutes)**

1. i) **Summarize** the major aspects of the biochemical theory of the origin of life mentioning laboratory evidence where available.

   ii) Mentioning suitable examples, compare microevolution with macroevolution.

   15 marks

2. Describe the protein transport pathway in a eukaryotic cell that secretes proteins.

   15 marks

3. (i) List the functions of bones.

   (ii) Write a brief account on the structure, function and importance of the cells found in the bones.

   15 marks

4. (i). Briefly explain the different cleavage types found in embryonic development.

   (ii). Briefly mention the importance of embryonic stem cells.

   15 marks

Marks of the continuous assessment **Max. 30 marks**

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