

**UNIVERSITY OF RUHUNA**

**BACHELOR OF SCIENCE GENERAL DEGREE LEVEL I (SEMESTER I)**

**EXAMINATION – JUNE/JULY 2015**

**Subject : Zoology**

**Course Unit : ZOO 1102 – Core Zoology**

**Time: 01½ hours**

**Index No : .....**

Question No.	Marks
<b>Part A</b>	1
	2
	3
	4
<b>Part B</b>	1
	2
	3
	4
<b>Assessment</b>	
<b>Total</b>	

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

*Illegible handwriting would be penalized.*

**Part A : Answer all. (45 minutes)**

1. (i). Define the term Gene pool.

.....

.....

.....

(ii). Give **two** conditions required for a population to remain at Hardy Weinberg equilibrium.

.....

.....

(iii). Describe the **two** types of evolution in brief.

.....

.....

.....

.....

(iv). Give **one** evidence for evolution from development biology.

.....  
.....  
.....  
.....

(v). Briefly describe the autogenous hypothesis of the origin of eukaryotes.

.....  
.....  
.....  
.....

(vi). Name the **two** modes of development of coelom giving **one** example for each.

.....  
.....  
.....  
.....

**(10 marks)**

2. (i). Mention how **three** main types of membrane-proteins occur in cell membranes.

.....  
.....  
.....  
.....  
.....  
.....

(ii). Facilitated diffusion occurs via specialized proteins in the cell membranes. Name **two** major groups of such proteins, and compare their shapes.

.....

.....

.....

.....

.....

.....

(iii). State the specific role of the following enzymes during DNA replication?

Primase : .....

.....

DNA polymerase III : .....

.....

DNA polymerase I : .....

.....

(iv). Name the organelle where protein synthesis occurs in cells. What is it made up of? Mention the difference of this organelle between prokaryotes and eukaryotes.

.....

.....

.....

.....

.....

3. (i). Classify epithelial tissues based on their morphology.

.....

.....

.....

.....

.....

.....

.....

.....

(ii). What are tight junctions?

.....

.....

.....

.....

(iii). Name **two** functions of tight junctions.

.....

.....

.....

.....

(iv). List the components of connective tissues.

.....

.....

.....

.....

(v). Describe primary bones and secondary bones.

.....

.....

.....

.....

.....

.....

.....

.....

**(10 marks)**

4. (i). What is cleavage of an embryo?

.....

.....

.....

.....

.....

(ii). How the cleavage is affected by yolk?

.....

.....

.....

.....

.....

.....

.....

.....

(iii). What are embryonic stem cells?

.....  
.....  
.....  
.....

(iv). List **three** unique features of embryonic stem cells.

.....  
.....  
.....  
.....  
.....  
.....

(v). List **three** important features of gastrulation.

.....  
.....  
.....  
.....  
.....

(vi). What are the major factors that regulate embryonic development?

.....  
.....  
.....  
.....  
.....

**(10 marks)**

**Part B : Answer any two questions only. (45 minutes)**

1. (i). What is natural selection?

(ii). Giving an example describe the directional selection.

**(20 marks)**

2. Describe the transport pathway of secretory proteins in eukaryotes.


**(20 marks)**

3. Write a brief account on structure and functional diversity of blood cells.

**(20 marks)**

4. Discuss the role of acrosome reaction and cortical reaction in fertilization.

**(20 marks)**

 **For the assessment**

**(20 marks)**

@@@@@@@@@@@@@@@@@@