

UNIVERSITY OF RUHUNA
BACHELOR OF SCIENCE GENERAL DEGREE LEVEL I
(SEMESTER II) EXAMINATION – JANUARY 2022

Subject: Zoology

Time: 01½ hour

Course Unit: ZOO 1212 – Chordate Organization and Diversity

Index No :

Answer **all** questions in **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	5
	6
	7
	8
Assessment	
Total	

Part A: Answer All

1. Pectoral fins of three fish species are given in the Figure 1.

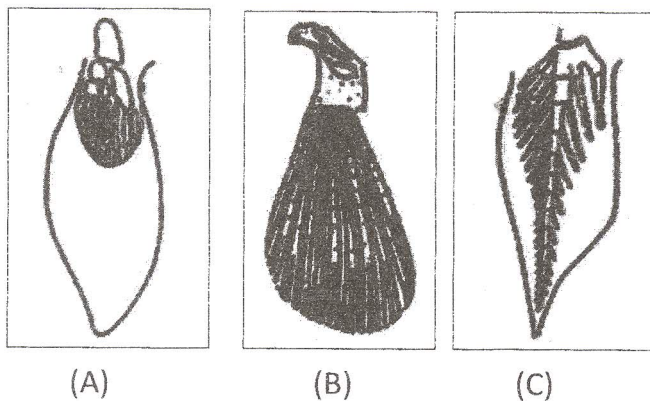


Figure 1

(i). Name **one** fish species each that possess each of the above fin types (A to C) depicted in the Figure 1.

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(ii). What is the **main** characteristic feature that can be used to differentiate the fin types depicted on the figure B and C.

.....

.....

Index No :

(iii). Arrange the above figures A to C according to the **ascending** (from lower to higher) order of the evolution of the fin structures.

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(iv). Mention **two** significant morphological characteristics that contribute to the success of Placodermi fishes.

a).....

b).....

(v). Mention **two** advanced features seen in the gills of higher bony fishes.

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2. (i). Briefly explain the importance of **digging** and **burrowing behavior** of Amphibians.

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(ii). Give a **brief** description of frog skin.

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(iii). What are the colours of the pigments that are produced in the following pigment cells.

a) Xanthophores -

b) Iridophores -

c) Melanophores -

Index No :

(iv). State **two** morphological characters each of the orders given below.

a) Apoda.....
.....

b) Urodela.....
.....

c) Anura.....
.....

(v). Mention **three** key changes that have occurred during the **tetrapod evolution**.

a)

b)

c)

3. (i). Mention the **three major lineages** that had evolved from amniotes during the late Carboniferous period.

a).

b).

c).

(ii). Write **two sensory adaptations** of snakes that help them to detect the prey at night.

a).

b).

(iii). Write **two** adaptations shown by Leatherback turtles to live in **extreme cold** Oceans/seas in the world.

a).

b).

Index No :

(iv). "Tuataras have retained the most primitive traits of reptilian reproduction".

Give **two** such characteristics support the above statement.

a).

b).

(v). Write **five** major **evolutionary advanced features** of crocodiles that are closely related to birds than other living reptiles.

a).....

b).....

c).....

d).....

e).....

4. (i). 'An air borne life is a highly demanding evolutionary challenge for a large vertebrate'. Write **four adaptations** seen in birds that have enabled them to successfully overcome this challenge.

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(ii). Mention the names of the **three theories** that have been put forward to explain the **origin of bird flight**.

a).....

b).....

c).....

Index No :

(iii). (a). Write **three** reptilian features present in bird skull.

I).....

II).....

III).....

(b). Write **three** avian features present in *Archaeopteryx*.

I).....

II).....

III).....

(iv). Briefly explain the **skeletal features** that can be used to **differentiate** flying birds from non-flying birds.

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.....

(v). Name the **four different types of flight** seen among birds.

a).....

b).....

c).....

d).....

(40 minutes)

(40 marks)

Part B

5. 'With the evolution of fishes, the swim bladder developed to act as a **multifunctional** organ' Discuss this statement.

(25 minutes)

(15 marks)

6. 'Defense mechanisms of amphibians are common throughout their life cycle'. Justify this statement giving suitable examples.

(25 minutes)

(15 marks)

7. Briefly describe the evolutionary advanced reproductive adaptations seen in reptiles.

(25 minutes)

(15 marks)

8. Briefly explain the importance of hind limbs in birds.

(25 minutes)

(15 marks)

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