

Name: _____ Student Number: _____

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Department of Biology

BIO2135

Animal Form and Function

University of Ottawa

Professor : Dr. Adam Oliver Brown

Final PRACTICE Exam

April 24, 2019 @ 2pm

Worth 35% of your final mark

Instructions :

1. This is a closed book exam – no notes, books or electronic devices are permitted.
2. Write your name and student number at the top of every page because the exam booklets will have the pages separated during correction.
3. Make sure that the exam booklet is complete – there are 10 pages in total, including the cover pages.
4. Write your answers directly in this exam booklet without exceeding the space provided.
5. Read the questions carefully and answer using complete sentences only, no point form allowed.
N.B. Do not use drawings, tables or diagrams – they do not replace written explanations and will not be marked.
6. Think hard, reflect well and write coherently in the time allotted, you have 80 minutes.
7. Good Luck!

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Definitions	/20 points
Fill in the Blanks	/20 points
Short Answer	/40 points
Total	/80 points

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Part 1: Definitions (2 points each) – Define and/or explain the meaning and implications of the following terms as they relate to the content of this course.

1- Paedomorphosis :

2- Lateral line system :

3- Apophyses :

4- Urostyle :

5- Semi-circular canals :

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6- Hard palate :

7- Archaeopteryx lithographica :

8- Precocial chicks :

9- Diaphragm :

10- Eccrine sweat :

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Part 2 : Fill in the Blanks (1 point each) – Write the name or word that corresponds most appropriately to the following zoological descriptions:

- 1- The name of the caecum in Cephalochordata where extra-cellular digestion takes place. _____
- 2- The name of the flexible envelope that surrounds the Chordata notochord.

- 3- The name for the muscular segments of Chordata. _____
- 4- The cladistic taxonomic name that includes all descendants of fish without jaws.

- 5- Appendages that are absent in Agnatha but present in all other fishes.

- 6- The name of the structure that allows bony fish to adjust their buoyancy in water.

- 7- The name of the singular bone in the proximal portion of the anterior limb of Tetrapoda _____
- 8- With the ulna, this is one of the bones in the distal portion of the anterior limb of Tetrapoda. _____
- 9- In Anura, the structure is the result of the fusion of the sacral vertebrae and is an adaptation for saltatory locomotion. _____
- 10- The name of the kind of Reptilia egg. _____

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- 11- The type of Amniote skull that has two temporal fenestrae. _____
- 12- The name of the existing Class of amniotes that is directly descendant from synapsids. _____
- 13- The spectrum of light that is perceived by certain snakes that allows them to view their prey in the dark. _____
- 14- The name of the elevator muscle for the anterior limb in birds, that is uniquely ventral as an adaptation for flight. _____
- 15- The name for the pulmonary ducts in birds that allows for a unidirectional flow of air. _____
- 16- Compared to other vertebrates, this layer forms the major portion of the Mammalian skin. _____
- 17- The main protein in Mammalian hair follicles. _____
- 18- The name of the Infra-Class of Mammals that carry their young in an abdominal pouch. _____
- 19- The region in the reproductive tract of female Eutherian mammals where the embryos develop. _____
- 20- The name of the structure that is responsible for gas and nutrient exchange between a female Eutherian mammal and her embryonic offspring in development.

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Part 3 : Short Answer (5 points each) –

Describe and/or explain the following concepts in the space provided.

1-Describe the role of the operculum in bony fish and explain the advantages that it brings to osteichthyan fish over the chondrichthyes.

2- Describe the mechanisms by which the Anura can capture and swallow their prey.

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3-Describe the morphology of snakes in such a way that is explains how they are capable of swallowing such large prey.

4-Describe the trajectory of the blood as it leaves a Mammalian heart through the body and comes back again.

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5-Describe the osmotic constraints and consequences for animals that excrete their nitrogenous wastes as either ammonia or uric acid in aquatic vs. terrestrial environments.

6- Compare and contrast the structure and effectiveness of open vs. closed circulatory systems.

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7-Compare and contrast the mode and mechanism of feeding in Gastropoda (Mollusca) and Echinoidea (Echinodermata).

8-Compare the mode and mechanism of the function for the Oligochaeta metanephridia and the Vertebrata nephron.