Biology 121 Section 224

Midterm 1. February 1st, 2012

Instructor: Greg Bole

FAMILY/LAST Name: _____ **FIRST Name:** _____

Student number: _____

Instructions:

1. This exam has 3 sheets total (4 pages with questions). Look over the exam to make sure no pages are missing. Also before you begin, read over the whole exam first and see how much each question is worth. Plan your time accordingly.
2. Answer all questions in the space provided. Material written on the backs of pages will not be read or marked - unless it is an exact replacement for crossed-out material to be ignored in the answer-space.
3. All writing should be in ink. If you choose to write in pencil, there will be no chance of having your exam remarked.
4. Answers may be in sentences or point form.
5. No electronic devices are permitted.
6. Students suspected of any of dishonest practices will be immediately dismissed from the examination and will be subject to disciplinary action.
7. Other than a single page of hand-written summary notes with your concept map on one standard sheet of paper, no other memory devices are permitted. Please turn off your cell phone and leave it in your bag.
8. Students may not speak or in any other way communicate with other students while in the examination room.
9. Students may not expose their written paper to other students. The excuse of accidental exposure, forgetfulness, or ignorance will not be accepted.
10. Following completion of the exam the one-page note sheet must be turned in with your exam and must have your name and student number written at the top.

I have read and fully understand these instructions.

Student signature _____

Mark allocation:

Question	Marks possible	Your mark
1.	7	
2.	8	
3.	12	
4.	6	
5.	7	
6.	9	

Concept Map	1	
Total	**50**	

1a. If vervet monkeys are the only species of monkey in a forest, they will feed both on the ground and in the treetops. However, if baboons (a similar sized species of African monkey) are found in the same forest, you will find the baboons feeding only on the ground and the vervet monkeys only in the treetops. (7 marks total)

a) What concept does this demonstrate? (2 marks)

b) In the space below, draw a graphical representation of this situation. Make sure to label both axes as well as three curves: (5 marks)

A: vervets before the introduction of baboons
B: vervets after the introduction of baboons
C: baboons after they are introduced

3. A biomass sample was taken from a specific area, in and above a marine kelp forest off the west coast of Vancouver Island. The analysis showed variety in both number and type of organisms present. The data collected are shown in the table below. (12 marks total)

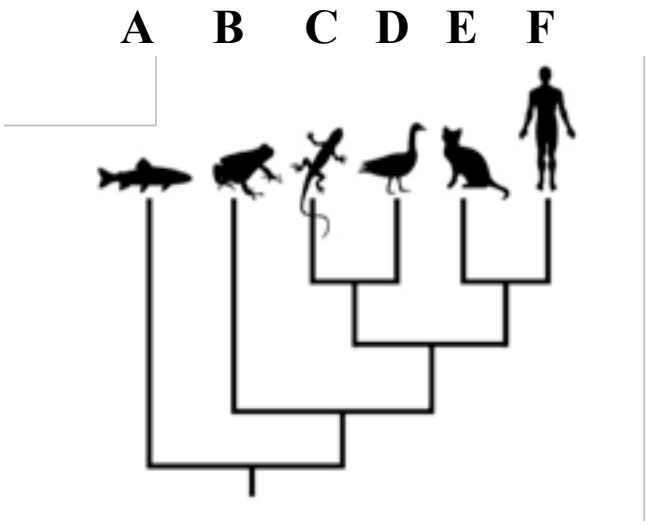
Type of Organism	**Amount Present in Sample**
Sea lions	6
Giant Kelp	3,510
Sea urchins	650
Bald eagles	5
Sea otters	85

a) Using the organisms and data above, draw a food web and label any producer/s, primary consumer/s, secondary consumer/s, and tertiary consumer/s. (7 marks)

b) What would happen to the sea lion population if we removed the bald eagles from this food web? Explain why. (3 marks)

c) Give an example of possible intraspecific competition that might occur in this food web. (2 marks)

4. Consider the following phylogenetic tree showing the relationships between living vertebrates. (6 marks total)



a) In the diagram above, circle the node or split that represents the most recent common ancestor between taxa D and B. (2 marks)

b) Is taxon B more primitive than taxon E? Explain why or why not. (4 marks)

5. Give ONE example of a radiation of organisms that occurred after a colonization event OR after a mass extinction OR after a morphological innovation. Explain a possible reason for this radiation. (7 marks)

British Columbia

6. You are a Conservation Ecologist hired to study the effects of disturbances on a costal temperate forest in British Columbia (an ecosystem characterized by cone-bearing coniferous trees, found along much of our coast). Environment Canada asks you for the following information. (9 marks total)

c) What is one way that humans could interrupt a disturbance regime for this ecosystem? (1 mark)

d) What are two likely features of plant species that are found only in late successional communities in this biome? (2 marks)

e) What are two ways that nutrients can get from the organisms in this ecosystem back into an abiotic form? (2 marks)

f) What are two conditions that affect the rate at which this happens? (2 marks)