

BISC 100 MIDTERM 1

(15 marks) (1) Your favorite research animal is intriguing. Almost everywhere on this planet, this freshwater fish is largely orange in color but in western Australia it is mostly purple. Develop a theory that explains the evolution of this color dimorphism by natural selection and then develop two experiments or suggest empirically derived pieces of data that are critical to supporting your theory i.e. 2 pieces of evidence in total from experimental and/or empirical data. Explain why those pieces of evidence are critical. Use the answer sheet on the back of this page.

Provide short answers for *two* of the *three* questions below on the answer sheet on the back of this page. (4 marks each)

(2A) What is the key difference between Lamarck's and Cuvier's theories of evolution?

(2B) Explain with reference to atomic number why reactivity of elements is a predictable phenomenon

Mark each question true or false (1 mark) and then explain why you chose that category (1 mark)

- a) Archaea are easily confused with bacteria because they are also ball and rod shaped.
- b) You can't have evolution by natural selection without heritable variation.
- c) ATP always exists at a higher energy state than ADP
- d) All fungi are heterotrophs
- e) Pore size is a primary determinant as to whether a membrane protein works via passive versus active transport.