BIO 1130 An Introduction to Organismal biology
Midterm examination
Worth either 15% or 20% of your final grade
Total points for both parts of the exam is 60 pts

Saturday, October 1, 2011

Part B: Written questions

a) Place your name and student number in the space provided below. Be sure that your student number is on the top of each of the following pages – the exam will be separated. ONLY place your student number on the pages where indicated

b) Answer all questions in the space provided on the exam. Do not transfer answers to the back of the page.

c) You may use either pencil of ink for your answers.

d) Answers as written paragraphs are preferred but point form is acceptable as long as the points are logically organized and not random statements or facts

e) This is not an open book exam.

f) There are five pages including this one in part B of the exam, be sure you have all five pages.

g) Enter the multiple choice exam code in the space provided

Name: _____

Student number: _____

Multiple Choice Exam Code (MM or FF): _____

● ●

12 pts Part 1. Briefly explain what each of the following terms means or the biological contribution made by the person. Where possible include an example in your explanation from a group or an organism to which the term or name applies.

RNA world
{Explanation/Theory on the origins of life/Central Dogma on the planet}{Proposes that RNA is the first polymer/replicating molecule}{From it proteins were produced and then DNA – the sequence is important here RNA first, then protein and finally DNA to get to the Central dogma} one point each.

Divergent evolution

{Organism have a structure/something that has a similar function}{but the animals/organisms are related to each other/ they descend from a common ancestor}{results in homology } {ex. The one in class we used wasthe classic modification of the forelimb of the dog, whale, bat, bird, watch in case there are others that are acceptable} First two points Must be there either of the last two to give the total of three points.

Kingdom Fungi
{Multicellular eukaryote organism will appear but if it is there both must be there for the full point – in part because this also applies to Animals and plants}{Cell walls made of chitin}{Feed on dead/decaying are saprophytic}

Hadean eon
{4.8/4.6 – 3.8 Billion years ago}{Formation of the solar system and the planets}{ends with the appearance of the first life forms}

18 pts Part 2: Fill in the missing word, or provide the one word answer in the space provided at the end of the sentence. If the line is missing, add it to the end of the line.

2.1 Natural scientists have to deal with this characteristic of the objects that they study, the physical scientists don't have the problem. _____**Variability**_____

2.2 The scientific revolution begins in this century. _____**16th**_____

2.3 The type of prediction that a scientist's test of a hypothesis is. _____**Logical**_____

2.4 As more and more evidence supports a theory it may become this. _____**Fact**_____

2.5 For the Greeks these were found at the top of the great chain of being. _____**God/Gods**_____

2.6 Your text book is an example of this type of scientific literature. ____**Tertiary**____

2.7 The glass in fiber optic cables and the speed with which communication and data maybe shared led Douglas Adams' to use it as the hallmark for this age of sand that he proposed to divide up the modern age of science. _____**4th**_____

2.8 The study of the layers of sedimentary rocks that tell geological history. _____**Stratigraphy**_____

2.9 Of hypothesis and theory this is the more general finding that has the broadest application. _____**Theory**_____

2.10 The term a biologist uses when something is more than the sum of the parts. **Emmergence**

2.11 This is the preferred investigative method of the physical sciences. _____**Experiment**_____

2.12 Greeks such as Plato and Aristotle all believed that organisms were unique and unaltered types, a philosophy given this name. _____**Essentialism**_____

2.13 A key character that separated the organisms in the Kingdoms that Linnaeus described. _____**Movement**_____

2.14 As a young biologist you are asked to organize some never before seen animals. Some you can match to known ones but there is a very different group in the set and all of them have a radial symmetry but unlike the jelly fish no cnidocytes. You propose a new group of animals and name them the cubozoa because of their box like shape and their dissimilarity with the jellyfish. This is what type of reasoning? _____**Inductive**_____

2.15 Geological eras are combined into these larger units of time. _____**Eoans**_____

2.16 Naturalist thinking begins with these philosophers in 400 BCE. _____**Greek**_____

2.17. This type of decay has been used to date the world's oldest rocks as being 4.5 billion years old. _____**Radioactive**_____

2.18 These protein building blocks were found in mater produced by the Miller-Urey experiment (two words) _____**Amino acids**_____

Part three of the exam is on the next page

10 pts Part 3: Answer the following two questions in the space provided.

3.1 Two of Darwin's theories in the Origin of Species were accepted almost immediately. One was that there was no constancy of species, what was the other? Provide and explain two pieces of evidence that support the theory that there is no constancy of species.

{Other Common ancestry}

For No constancy of species. Any two of the following for two points each – it is essential that the example they give is explained and not just mentioned. Almost all answers will probably relate to something about fossils, either fossils themselves or their interpretation

Evidence 1: {Fossils themselves} {Fossils of various types of have been on earth even for groups that didn't fossilize well have appeared – the answer is all about the wealth of fossils that have been found.}
Evidence 2: {Transition fossils}{Show the intermediate/missing links in the change/sequence of change with an example that come from the evolution of the horse, birds (*Archaeopteryx*) or Seals (*Puijila darwinni*)}.
Evidence 3: {Extinction} {Periods of time where whole types a groups of organisms have disappeared, evidence are the fossils themselves but extinction implies that species are not constant and can disappear, mammoth and Irish elk two mentioned in class, obviously the dinosaurs}

3.2 By the middle of the 19th century the *Scala naturae* was being challenged for its validity. What was the challenge? The essentialist modified their thoughts in two very different ways, what are the two modifications to essentialist thinking; briefly describe them.

What was the challenge and the modification? {What about the Scala Naturae – organisms never changed or modified the essence that defined them was fixed and the new or the revision in thinking by the Essentialists accepted that the essence that defines an organism can change/or has changed

{Transmutation}{That there have been instances where the essence has changed dramatically and quickly to create new organisms, This is NOT Lamarck and it he is mentioned here then this explanation is wrong –As background I jokingly say in class that cows produced more cows and porduced more then all of a sudden it was a horse not a cow and a new organism with a brand new essence}

{Transformation} {That the essence does change gradually over time (This is the meat of the answer) and there are two examples that can be used here to explain it but only one is required. The essence gradually changes and perfects itself – finalism or the environment changes it – Lamarck}