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 3, 2015

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) No calculators allowed.

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

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

Name: _____

Student number: _____

Multiple Choice Exam Code (MM or FF): _____

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12 pts Part 1. Briefly explain what each of the following terms or phrases 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.

Charles Lyell

{Uniformitarian theory}{ changes in the fossils are gradual and slow}{Layers in the rocks represent different times or intervals}{Geological time scale} Each of these four is worth a point – maximum of three points for the full marks.

Paraphyletic phylogeny

{A taxon/group of related organisms – taxon implies they are related if don't use it it must be clear that the organism are related to each other – share a phylogeny – evolutionary history} {includes the ancestor to the group but not all the descendents} {Birds were paraphyletic to the other reptiles}

Proximate cause
{How questions}{Very mechanical simple questions, no concern about larger evolution questions} {the outcome is a direct result of the cause, } {ex: a stimulus causes a reaction/behaviour} Must have first two for a point each – either of the third or the fourth to give the maximum of 3 points.

Vitalist

{Explanation for how animals and plants functioned}{governed/behaved/explained by the rules/processes of Physics and Chemistry}{But there was more to it than this – there was a special essence or vital force that went beyond what physics and chemistry could explain – it is important that no marks be given for the role of a genetic program or heredity since this is not a part of the physicalists} 1 point each for a total of 3

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

2.2 Birds and insects both fly and have wings, but they don't share a common ancestor so their wings are considered as being this type of character. __**Homoplasy/analogous**____

2.3 It's anatomically impossible for two different species to physically mate. It's an example of this type reproductive isolation mechanism. _____ **Mechanical** _____

2.4 The major taxon found between Species and Family. _____ **Genus** _____

2.5 The typographic form that the first letter of the Genus name takes. ____**Capital** _____

2.6 This type of reproductive isolation of species occurs even if sperm form one species fertilizes the egg of another. _____ **Postzygotoc** _____

2.7 It is Douglas Adams feeling that the invention of this scientific instrument started the second great age of scientific discovery. _____ **Microscope** _____

2.8 The term a biologist uses when something is more than the sum of the parts. _____ **Emergence** _____

2.9 Parsimony is very similar to the KISS principle. What is the first S in the acronym? _____ **Simple** _____

2.10 The science of the scientific revolution studied mostly these types of objects. _____ **Inanimate** _____

2.11 These derived characters are shared by all the members of the clade and are referred to as these. _____ **Synapomorphies** _____

2.12 This result of the removal of a long-time barrier separating two populations of a species so that the two populations come in contact again is referred to as this type of contact. _____**Secondary** _____

2.13 In a cladistics analysis organisms at the bottom of the phylogeny have the most of these types of traits or characteristics. _____ **Plesiomorphies** _____

2.14 These locations of two ecologically isolated species differ from each other. _____ **Habitat** _____

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

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

2.17 A term that describes any of the major or minor groups in the classification system. _____ **Taxon** _____

2.18 If you have a set of rules for how you will classify different things then you've got this. _____ **Taxonomy** _____

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 How do allopatric and sympatric speciation differ in how new species arise? Give an example for each.

Allopatric: {Separation occurring in separated locations at the same time}{populations separated by geographic barrier/vicariance withexample different animals on Africa or South America/Isthmus of Panama separating fish populations on either side} {Separated by dispersal to islands Finches on Galapagos islands}

Sympatric: {Separation occurring in same space and time}{apple maggot on Hawthorne

3.2 Describe the contribution of two Greek/Roman philosophers to the advancement of natural sciences.

{Aristotle}{organized the living world into a sequence with a bit of explanation}{Scala Naturae/GreatChain of Being}
and
{Theophastrus} {organized and catalogued plants based on reproductive structures}