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, 2016

Part B: Written questions

Please read the following instructions and sign in the space provided below to acknowledge the instructions:

a) Cellular phones, unauthorized electronic devices or course notes (unless an open-book exam) are not allowed during this exam. Phones and devices must be turned off and put away in your bag. Do not keep them in your possession, such as in your pockets. If caught with such a device or document, the following may occur: you may be asked to leave immediately the exam, academic fraud allegations will be filed which may result in you obtaining a 0 (zero) for the exam
b) Place your name and student number in the space provided below. Be sure only your student number is on the top of each of the following pages – the exam will be separated and if you name is not on a page your mark will be zero for that page.
c) 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) A calculator is not required for the exam
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: _____

Signature: _____

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.

Parsimony

{using the simplest explanation/KISS principle of Keep It Simple Stupid} {in cladistics used for creating evolutionaryt trees/creating phylogenetic trees (implies cladistics)} {trees must have the smallest number of evolutionary changes/evolution of the camera eye is best explained by evolving twice (Convergent evolution) then being a single event}

Fitness

{ability to pass/contribute genotype/genome/genes traits}{to the next generation} {More progeny produced results in increased fitness}

NOTE it has nothing to do with individual functional fitness which many students mention

Transmutation of the essence

{Organisms existed as fixed unchanging types that did not evolve}{changes in essence created new types of organisms}{no gradual changes new types were spontaneous/sudden} One point each part, the idea must be present but it does not need to be worded exactly as worded here.

NOTE: Some students defined both transmutation of the essence and species. The first explanation is the one that will be marked.

Leclerc

{Scientist in the 18th century}{Proposes the idea of common ancestry/that there have been changes in the animals that are present (vestigial structures and cat similarities)}{Wrote a series of books on natural history describing biodiversity}{Biogeography – different animals with similar lives in different locations/ marsupial wolf and mammalian wolf of Australia and North America different types of cats around the world} Point each to a total of three points

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 Naturalist thinking begins with this group of philosophers in 400 BCE. _____**Greek**_____

2.2 The discovery of this resolved the differences between the Physicalists and Vitalists. _____ **Genetics/heritability**_____

2.3 Lowest taxonomic level for adjacent ring species. _____ **Subspecies** _____

2.4 In this type of review other scientists working in the same area as you look over your manuscript and make recommendation on whether it should be published. _____**Peer**_____

2.5 The organism that results from genomic mix of two different species are referred to as being this; a reference to the two different parental lineages. _____**Hybrid**_____

2.6 Your horoscope is this type of prediction. _____**Chronological**_____

2.7 Douglas Adam's definition of the different Ages of scientific discovery was based on the use of this material in the making of glass. _____**Sand/Silica**_____

2.8 The scientific revolution begins in this century. _____**Sixteenth/16th**_____

2.9 A subset, or branch, of organisms within a phylogeny that all have the same shared characters are referred to as this, and give this method of classification its name. ___**Clade**___

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

2.11 When long separated populations that have become ring species come back into contact with each other and competition between the two results in the disappearance of one of the ring species this disappearance is referred to as this. ____**Extinction**_____

2.12 Ecological isolating mechanisms are also referred to as being this type of isolating mechanism, they are the same thing. _____**Habitat**_____

2.13 If a major scientific finding is applicable throughout the universe it reaches this level, unfortunately biological facts will never reach this level if universality is the sole criteria. _____**Laws**_____

2.14 Type of taxonomy passed on information about the living world that was passed from generation to generation by the word of mouth. _____**Folk**_____

2.15 While Europe is plunged into the dark ages the Muslim word entered into this age (or era) of discovery. _____**Golden**_____

2.16 This German scientist created cladistic analysis, as a mechanism for the study of phylogeny. _____ **Henning** _____

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

2.18 On a global scale continental drift result as resulted in new species through this type of speciation. _____**Allopatric/Vicariance**_____

NOTES

2.11 The wording is important come back together, compete, one disappears.

2.12 The answer requires the synonym to Habitat isolation not the broader and more inclusive term Prezygotic isolation.

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 What is Darwin's theory on "no constancy of species"? In your answer provide two observations/examples that support the theory.

No constancy of species { the number of species has not been constant/always the same – its important that the inventory of all species is changing and not constant}

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/forms}{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}
Evidence 4: Vestigial – doesn't really belong here but one point if used and explained

3.2 What is convergent evolution, give an example and explain its potential impact of our understanding of evolution?

{organisms with no common ancestor in similar environments} {develop similar morphology/function}{homoplasy/analogy}{example fossil icthyosaurs and whales and dolphins/marsupials and mammals/wings in animal groups/spuges and cactus/carnivorous plants} {no impact on studying evolution}{since they don't have the same ancestor/descend from the same point}