

# BIO 1130FF

An introduction to Organismal biology  
Midterm examination  
Worth either 15% or 20% of your final grade

Saturday, October 1, 2011

**Part A: Multiple choice questions**  
**20 points (1 point/question)**

- a) Fill in the bubbles for your name and student number and BIO1130FF for the course code. Fill in the same information in text in the boxes above the bubbles.
- b) Use only a pencil to fill in the answer sheet. If you erase a question be sure to erase all of the pencil mark. Don't place any marks anywhere on the sheet other than where the bubbles are for personal information or your answers.
- c) Do not place any answers on the question sheet.
- d) This is not an open book exam.
- e) **CAUTION to minimize paper waste this part of the exam has been printed back to back**

**NOTE:** If you do not fill in the student number and course code as **BIO1130FF** it will be impossible to identify your answer sheet and you will receive a **ZERO** for this part of the exam

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FF.1 Currently, taxonomic domains include

- a. Archaea, Bacteria, Eukarya.
- b. North America, South America, Eurasia, Africa, and Australia.
- c. Mammalia, Insecta, Aves, and Planta.
- d. Kingdom, Phylum, Class, and Species.

FF.2 Which one of the following predictions follows from the sexual selection hypothesis for why giraffes have long necks?

- a. In contests over females, the male with the longest neck should have an advantage over the other males.
- b. Young males that are given extra amounts of high-quality food should grow particularly long, strong necks.
- c. In contests over females, the best-nourished male should always, or almost always, win.
- d. In natural populations, female neck length should decline over time.

FF.3 Which of the following kinds of traits was originally used for classifying organisms into taxonomic categories?

- a. DNA and amino acid sequences
- b. geography and ecology
- c. morphology
- d. physiology and biochemical pathways

FF.4 The Irish elk and the mammoth are two of the 23 large animals that this scientist used as evidence for this process.

- a. Spontaneous generation
- b. *Scala naturae*
- c. Extinction
- d. Transmutation of species
- e. Transition fossils

FF.5 According to the transmutation of species principle of use and disuse, the form of body parts in offspring

- a. is not changeable.
- b. is the result of natural selection.
- c. is the result of how much the offspring uses a particular body part.
- d. is inherited based on phenotypic changes that occur in parents during their lifetime

FF.6 Which of the following is a compartment that often takes up much of the volume of a plant cell?

- a. Golgi apparatus
- b. peroxisome
- c. lysosome
- d. mitochondrion
- e. vacuole

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FF.7 In the Linnaean classification system, which taxon would generally include the largest number of species?

- a. Family
- b. Order
- c. Genus
- d. Phylum

FF.8 How does artificial selection differ from natural selection?

- a. Artificial selection occurs only in computer simulations, not with actual organisms.
- b. Artificial selection occurs only with plants.
- c. Artificial selection is not based on heritable variation, but on new mutations.
- d. Artificial selection is based on conscious choices by humans.

FF.9 Unlike Lamarckian evolution Darwin's evolutionary scheme was

- a. a linear pattern
- b. a cladistic pattern
- c. a branching pattern
- d. a essentialism pattern

FF.10 This important building block has not been successfully synthesized in experiments looking at the prebiotic organic chemistry of life's origins.

- a. Transfer RNA
- b. Nucleotides
- c. Ribose
- d. Amino acids

FF.11 Water's high specific heat is mainly a consequence of the

- a. inability of water to dissipate heat into dry air.
- b. absorption and release of heat when hydrogen bonds break and form.
- c. fact that water is a poor heat conductor.
- d. high specific heat of oxygen and hydrogen atoms.
- e. small size of the water molecules.

FF.12 Arrange the following discoveries or philosophies in the correct chronological (that's oldest to the newest) order: (1) The largest list of 1400 medicinal plants still in use in 18th and 19th centuries, (2) list of plants whose author is the father of taxonomy, (3) the earth revolves around the sun, (4) the living world is divided into five Kingdoms.

- a. 1, 2, 3, 4
- b. 3, 2, 1, 4
- c. 2, 1, 4, 3
- d. 2, 1, 3, 4

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FF.13 Why is it important that an experiment include a control group?

- a. Without a control group, there is no basis for knowing if a particular result is due to the variable being tested or to some other factor.
- b. The control group is the group that the researcher is in control of; it is the group in which the researcher predetermines the nature of the results.
- c. The control group provides a reserve of experimental subjects.
- d. A control group assures that an experiment will be repeatable.
- e. A control group is required for the development of an "if, then" statement

FF.14 The Muslim scholar Avicenna is best known for his biological work on:

- a. A list of plants with descriptions of each plant's life cycle
- b. A list of plants that included a pharmaceutical index of their importance - it was in use until the late 18th century
- c. His book the canon of medicine that integrated the works of Greek, Indian and Muslim physicians
- d. Introduction of the scientific method

FF.15 By definition, the difference between prokaryotic and eukaryotic cell type is in the presence/absence of the

- a. plasma membrane.
- b. DNA.
- c. chromosomes.
- d. nucleus

FF.16 The Golgi complex.

- a. synthesizes proteins for export from the cell
- b. receives proteins made in the rough ER and chemically modifies them
- c. synthesizes lipids
- d. stores nucleic acids
- e. stores ribosomes

FF.17 Who was responsible for establishing the classification system that uses binomial nomenclature?

- a. Carolus Linnaeus
- b. Louis Pasteur
- c. Jean-Baptiste Lamarck
- d. Charles Darwin

FF.18 Meteorite impacts during the stabilizing phase of the Hadean Eon did which of the following

- a. increased the amount of water on the planet
- b. flash sterilized the planet
- c. created the moon that circles the earth
- d. all of the above

FF.19 Which of the following is the best example of heritable variation?

- a. Amputation
- b. Red hair
- c. Love for music
- d. Skin cancer

FF.20 Organelles other than the nucleus that contain DNA include

- a. ribosomes, mitochondria, and chloroplasts
- b. chloroplasts
- c. mitochondria and chloroplasts only
- d. mitochondria
- e. ribosomes