

BIO 1130MM

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

Saturday, November 10, 2012

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

- a) Fill in the bubbles for your name and student number and BIO1130MM 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 **BIO1130MM** 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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Multiple choice questions - Place your answers on the answer sheet

- MM.1 While examining a rock surface, you have discovered an interesting new organism. Which of the following criteria will allow you to classify the organism as belonging to Bacteria but not Archaea or Eukarya?
- a. organism does not have nucleus.
 - b. it can survive at a temperature over 100°C.
 - c. cell walls are made primarily of peptidoglycan.
 - d. it is unicellular.
- MM.2 Members of the phylum Bryozoa possess a lophophore, which is
- a. a cluster of pores along the aboral surface, used for expelling wastes from the digestive tract.
 - b. an extra body cavity surrounding the digestive tract filled with muscles used for locomotion.
 - c. an outpocket of the digestive tract, where metabolic wastes are processed before emptying into the digestive tract for expulsion.
 - d. a rounded fold with one or two rows of hollow, ciliated tentacles.
- MM.3 DNA in prokaryotes is found in
- a. the nucleolus and plasmids.
 - b. plasmids.
 - c. the nucleolus.
 - d. the nucleoid and plasmids.
- MM.4 The Burgess Shale formation in eastern British Columbia, with fossils dating to about ____ years ago, includes a wide variety of unusual invertebrate animal fossils.
- a. 8,000
 - b. 505 million
 - c. 4 billion
 - d. 78 million
- MM.5 The major structural component of bacterial cell walls is
- a. proteoglycan.
 - b. peptidoglycan.
 - c. cellulose.
 - d. arabinogalactan.
- MM.6 Sperm in sponges is commonly formed from
- a. pinacocytes
 - b. porocytes
 - c. choanocytes
 - d. sclerocytes
 - e. none of the above
- MM.7 Microbiologists use the Gram stain to aid in identification of bacteria. What is the major difference between Gram-positive and Gram-negative bacteria?
- a. structure of the lipids in the plasma membrane
 - b. presence or absence of muramic acid in the cell wall
 - c. presence or absence of outer membrane
 - d. presence or absence of peptidoglycan in the cell wall

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MM.8 What is the correct order in the history of life on Earth?

- a. first prokaryotes, first eukaryotes, animals, land plants, humans
- b. humans, animals, land plants, first eukaryotes, first prokaryotes
- c. land plants, first prokaryotes, animals, first eukaryotes, humans
- d. animals, first prokaryotes, first eukaryotes, land plants, humans

MM.9 Viruses may have all of the following EXCEPT

- a. cytoplasm.
- b. DNA.
- c. lipids.
- d. protein.

MM.10 Which of the following is the developing gut for most animal embryos?

- a. mesoglea
- b. archenteron
- c. blastopore
- d. schizocoelom

MM.11 Compared to the sponges the Cnidarians are much more advanced in their

- a. respiratory system
- b. excretory system
- c. nervous system
- d. circulatory system

MM.12 All of the following are true about colonial choanoflagellates except:

- a. they reproduce asexually.
- b. they are suspension feeders.
- c. they are sessile.
- d. they are animals.
- e. they live in aquatic habitats.

MM.13 The nematocyst is an organelle found in this type of Cnidarian cell.

- a. Cnidocyte
- b. Choanocyte
- c. Epitheliomuscular cell
- d. Nutritive muscular cell
- e. None of the above

MM.14 Among flatworms, when a digestive tract is present, it has

- a. a single opening, the mouth
- b. two openings, mouth and anus
- c. a single opening, the anus
- d. no external openings
- e. a nephridiopore opening

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MM.15 The shell of a mollusc is secreted by the

- a. radula.
- X b. mantle.**
- c. periostracum.
- d. foot.
- e. visceral mass.

MM.16 Modern adult echinoderms have a form of symmetry known as

- a. asymmetry.
- X b. pentaradial.**
- c. triradial.
- d. bilateral.
- e. trilateral.

MM.17 Which statement about the genomes of prokaryotes is correct?

- X a. The prokaryotic chromosome is not contained within a nucleus but, rather, is found at the nucleoid region.**
- b. Prokaryotic genomes are diploid throughout most of the cell cycle.
- c. Prokaryotic genomes are composed of linear DNA (that is, DNA existing in the form of a line with two ends).
- d. Prokaryotic cells have multiple chromosomes, "packed" with a relatively large amount of protein.
- e. Prokaryotic chromosomes are sometimes called plasmids.

MM.18 One region of the sea star stomach, the _____, receives ingested food.

- a. gizzard
- b. crop
- X c. cardiac stomach**
- d. pylorus
- e. rectal cecum

MM.19 Which embryonic cell layer develops into the lining of the gut in most animals?

- a. mesoglea
- X b. endoderm**
- c. epidermis
- d. ectoderm

MM.20 Of what advantage is a large surface-area-to-volume ratio to the Platyhelminthes?

- a. It enables them to live in dry habitats.
- b. It enables their blood vessels to transport oxygen and carbon dioxide more efficiently.
- X c. It enables the efficient transport of gases and nutrients without specialized structures.**
- d. It enables them to survive on very little oxygen.
- e. None of the above are advantages.

MM.21 Which of the following is a diploblastic phylum of aquatic predators?

- a. Mollusca
- b. Echinodermata
- c. Annelida
- d. Arthropoda
- X e. Cnidaria**

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- MM.22 The blastopore is a structure that first becomes evident during
- a. fertilization.
 - X b. gastrulation.**
 - c. cleavage.
 - d. coelom formation.
 - e. the eight-cell stage of the embryo.
- MM.23 Animals that have a fluid-filled cavity that separates the gut from the muscles of the body wall and have that cavity completely lined by the muscles are said to be
- a. mesenteries.
 - X b. coelomate.**
 - c. pseudocoelomate.
 - d. indeterminate.
- MM.24 Organisms showing radial symmetry would likely
- a. be able to fly.
 - b. have many fins.
 - c. have rapid escape behavior.
 - X d. move from place to place relatively slowly, if at all.**
 - e. be good swimmers.
- MM.25 If archaeans are more closely related to eukaryotes than to bacteria, then which of the following is a reasonable prediction?
- a. Archaeal DNA should be single-stranded.
 - b. Archaeans should lack cell walls.
 - c. Archaeal chromosomes should have no protein bonded to them.
 - X d. Archaeal ribosomes should be larger than typical prokaryotic ribosomes.**
- MM.26 What is characteristic of all ecdysozoans?
- a. agile, speedy, and powerful locomotion
 - b. the diploblastic condition
 - c. the deuterostome condition
 - d. a pseudocoelom
 - X e. some kind of exoskeleton, or hard outer covering**
- MM.27 Both animals and fungi are heterotrophic. What distinguishes animal heterotrophy from fungal heterotrophy is that only animals derive their nutrition
- a. from organic matter.
 - b. by using enzymes to digest their food.
 - c. by preying on animals.
 - d. by consuming living, rather than dead, prey.
 - X e. by ingesting it.**
- MM.28 Bilateral symmetry is advantageous primarily because it allows for the development of _____.
- a. a specialized body cavity.
 - b. a hydrostatic skeleton.
 - c. limbs for the infant to attach to a parent.
 - d. duplicate body parts in case of injury.
 - X e. a specialized head and posterior.**