

BIOLOGY 1030 SAMPLE EXAM QUESTIONS

- The cells characteristic of the phylum _____, which have a long flagellum surrounded by a “fence-like” arrangement of microfibrils, are very similar to single-celled organisms called _____.

 - Porifera, Paramecium
 - Porifera, choanoflagellates
 - Cnidaria, cnidocytes
 - Cnidaria, choanoflagellates
 - Cnidaria, Paramecium
- While swimming in Whiteshell Park you discovered a worm has attached itself to your leg using one of two suckers. Further examination reveals repeating rings around the worm and a dorsoventrally flattened body. Your new friend is a member of which taxon?

 - Turbellaria
 - Oligochaeta
 - Hirudinida
 - Cestoda
 - Nematoda
- Phylogenies based primarily on molecular data and those based primarily on morphological data (traditional) agree on which of the following points?

 - Cnidarians are not related to the rest of the animals
 - Nematodes are more closely related to the annelids than to the arthropods.
 - The deuterostomes are all related.
 - The evolution of a true coelom is a derived character.
 - All of the above are true.
- What event initiates the fast block to polyspermy during fertilization?

 - Digestion of the egg’s jelly layer by the sperm’s acrosome.
 - Ions entering the oocyte membrane after sperm contact.
 - Cortical granule fusion to the plasma membrane.
 - Lifting of the fertilization envelop.
 - Fusion of the pronuclei from the sperm and egg.
- The mechanism of gastrulation is influenced by the amount and distribution of yolk present in the developing blastula. When observing development of the frog, the yolk distribution is called _____ while gastrulation occurs by _____.

 - Isolecithal; invagination
 - Isolecithal; involution
 - Mesolecithal; invagination
 - Mesolecithal; involution
 - Telolecithal; immigration

6. The first animal to evolve likely employed which of the following feeding strategies?
- A. Filter feeding
 - B. Substrate feeding
 - C. Fluid feeding
 - D. Bulk feeding
7. A vegetarian diet, with no meat, requires that an individual consume a variety of vegetables because:
- A. We need a variety of pigments for transport of oxygen.
 - B. We need the cellulose for building cell walls.
 - C. Plant proteins, unlike animal proteins, do not include all the essential amino acids we need.
 - D. Certain plants do not provide any carbohydrates.
8. Which of the following animals has an open circulatory system?
- A. An anemone
 - B. A giant squid
 - C. A naked mole rat
 - D. A grasshopper
 - E. A shark
9. Which of the statements about vertebrate blood vessels is TRUE?
- A. Veins are muscular and move blood by their own contractions.
 - B. Arterioles are small arteries that connect directly to venules (small veins).
 - C. Arteries have internal valves to prevent blood from flowing backwards.
 - D. Veins have thicker walls than arteries to assist in moving blood back to the heart.
 - E. Capillaries have low pressure, low velocity blood flow and a high total surface area to facilitate gas exchange.
10. Which of the following is usually the first cell type to leave the blood and enter infected tissues?
- A. Eosinophil
 - B. Lymphocyte
 - C. Monocyte
 - D. Natural killer cell
 - E. Neutrophil
11. The MHC (major histocompatibility complex) class I molecules
- A. Are only found on B cells.
 - B. Present antigens to helper T cells
 - C. Allow cytotoxic T cells to respond to antigens found inside of cells.
 - D. Are used to present antigens after a macrophage has engulfed a foreign particle.

12. What is a pheromone?
- A. A chemical emitted by one individual which influences the behaviour of other individuals of the same species.
 - B. A chemical emitted by one individual which influences the behaviour of other individuals of a number of species.
 - C. A chemical released internally which influences the behaviour of the animal releasing it.
 - D. A chemical which attracts insects to be eaten by their predators
 - E. A secretion which helps insects avoid desiccation.
13. What is the hormonal disease where the posterior pituitary does not produce enough antidiuretic hormone causing copious amounts of dilute urine?
- A. Type I diabetes mellitus
 - B. Type II diabetes mellitus
 - C. Diabetes insipidus
 - D. Acromegaly
 - E. Insulinitis
14. What is the state of the ion channels during the depolarization stage of a single action potential?
- A. Sodium channels are open while Potassium channels are closed
 - B. Sodium channels are closed while Potassium channels are open
 - C. Both Sodium and Potassium channels are open
 - D. Both Sodium and Potassium channels are closed
15. The proximate causes of behaviour are interactions with the environment, but behaviour is ultimately shaped by:
- A. Evolution
 - B. Hormones
 - C. Sexuality
 - D. Pheromones
 - E. The nervous system
16. During the Salmon run in the Adams River, a salmon returns to the very spot where it hatched. This type of behaviour is called:
- A. habituation
 - B. imprinting
 - C. fixed action patterns
 - D. innate behaviour
 - E. associative learning