

Biology 251  
October 2009  
PRACTICE Exam Two

1. The brain stem
  - a) controls the cardiovascular, respiratory, and digestive systems
  - b) is the critical connecting link between brain and spinal cord
  - c) suppresses useless movement patterns
  - d) both a and b
  - e) both b and c
2. The blood brain barrier
  - a) shields the brain from changes in blood composition
  - b) depends on gap junctions in brain capillaries
  - c) depends on tight junctions in brain capillaries
  - d) both a and b
  - e) both a and c
3. The part of the brain most involved in regulating homeostasis is
  - a) The brain stem
  - b) The cerebellum
  - c) The cerebral cortex
  - d) The hypothalamus
  - e) The basal nuclei
4. Which of the following is NOT one of the primary tastes?
  - a) bitter
  - b) spicy
  - c) salty
  - d) sweet
  - e) sour
5. When an afferent receptor that is a separate cell receives a stimulus, \_\_\_\_\_ enters the cell
  - a)  $\text{Ca}^{++}$
  - b)  $\text{Na}^+$
  - c)  $\text{K}^+$
  - d)  $\text{Cl}^-$
  - e)  $\text{H}^+$
6. which causes a chemical messenger to exit the receptor cell and bind to the afferent axon, which causes \_\_\_\_\_ to enter the axon and the membrane to \_\_\_\_\_.
  - a)  $\text{Ca}^{++}$  ; depolarize
  - b)  $\text{Na}^+$  ; depolarize
  - c)  $\text{Na}^+$  ; hyperpolarize
  - d)  $\text{Ca}^{++}$  ; hyperpolarize
  - e) Neurotransmitter ; depolarize

7. The parasympathetic nervous system
  - a) Is part of the afferent nervous system
  - b) Is completely shut down anytime the sympathetic nervous system is operating
  - c) Up regulates motility of the GI tract
  - d) Up regulates heart activity
  - e) Both b and c are true
  
8. Which of the following statements about the autonomic nervous system is false?
  - a) Every autonomic pathway consists of a two neuron chain
  - b) The cell body of the first neuron in each autonomic pathway lies in the CNS
  - c) Acetylcholine is released by the second neuron in every autonomic pathway
  - d) The parasympathetic nervous system is used primarily for routine housekeeping duties
  - e) None of the above are false
  
9. Place the following events of emission and expulsion in the male sexual cycle in the correct order:
  1. Pressure inside penis increased
  2. Sperm leave testis
  3. Skeletal muscle at base of penis contract at 0.8 second intervals
  4. Sympathetic nervous system causes smooth muscle in penis and scrotum to contract
  5. Semen forcibly expelled
  6. Urethra fills with semen
  - a) 4-2-6-3-1-5
  - b) 2-1-5-3-6-4
  - c) 1-2-3-4-5-6
  - d) 4-2-1-5-3-6
  - e) 5-3-2-4-1-6
  
10. Which of the following statements about the endocrine system is true?
  - a) The endocrine systems tends to control activities that require duration, not speed
  - b) A single target cell can be influenced by more than one hormone
  - c) A single hormone may be produced by more than one endocrine gland
  - d) A single endocrine gland may produce more than one hormone
  - e) All the above are true
  
11. Which of the following statements about tropic hormones is true?
  - a) A tropic hormone acts on another endocrine gland and causes it to release its hormone
  - b) Epinephrine is a tropic hormone
  - c) All lipophilic hormones are tropic hormones
  - d) Both a and b are true
  - e) Both and c are true
  
12. Which of the following statements about hydrophilic hormones is true?
  - a) They can dissolve in plasma
  - b) They function by initiating second messenger systems in target cells.
  - c) They function by causing channels in the cell membrane of target cells to open
  - d) All the above are true
  - e) Only a and c are true

13. Sperm production is directly stimulated by
- a) Testosterone
  - b) GnRH
  - c) LH
  - d) FSH
  - e) Both a and d
14. Which of the following statements about regulation of thyroid hormones is true?
- a) TSH positively feeds back on the hypothalamus causing TRH release
  - b) T3 and T4 negatively feed back on the pituitary to reduce TSH release
  - c) T3 and T4 negatively feed back on the hypothalamus to reduce TRH release
  - d) TRH negatively feeds back on the hypothalamus to reduce TSH release
  - e) Both b and c are true
15. Menstruation occurs because
- a) Estrogen levels decline sharply at the end of luteal phase
  - b) Progesterone levels decline sharply at the end of the luteal phase
  - c) The corpus luteum disintegrates and no longer produces its hormones
  - d) All the above are true
  - e) Only a and b are true