

Name _____

Kingsborough Community College of The City University of New York

Biology Department

Biology 11 Examination ANS

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Multiple Choice: use your scantron and darken the space of the letter of the best answer to each question.

1. The autonomic nervous system (ANS) is the motor portion for
 - a. somatic reflexes
 - b. visceral reflexes
 - c. all peripheral reflexes
 - d. skeletal muscular reflexes

2. Autonomic nerve impulses can be in response to sensory input from
 - a. stretch receptors in blood vessels monitoring blood pressure
 - b. stretch receptors in the urinary bladder or large intestine relating to their contents
 - c. any internal receptor monitoring conditions of the tissues and organs
 - d. the eyes, ears or nose sensing a dangerous situation
 - e. any one of the preceding

3. Cytons (cell bodies) of preganglionic sympathetic neurons are located in the
 - a. dorsal horns of gray matter
 - b. anterior horns of gray matter
 - c. lateral horns of gray matter
 - d. pons and medulla oblongata
 - e. S2-S4 segments of the spinal cord

4. Paravertebral ganglia contain cytons of
 - a. parasympathetic postganglionic neurons
 - b. parasympathetic preganglionic neurons
 - c. sympathetic preganglionic neurons
 - d. sympathetic postganglionic neurons

5. The sympathetic chain ganglia are found
- a. from cervical to coccygeal regions on either side of the vertebral column
 - b. alongside the thoracic region of the vertebral column
 - c. alongside the cervical and sacral regions of the vertebral column
 - d. alongside the lumbar area of the vertebral column
 - e. both b and d
6. Mass activation is a property of the _____ branch of the ANS.
- a. sympathetic b. parasympathetic
7. Postganglionic neurons of the parasympathetic branch of the ANS begin in _____ ganglia.
- a. dorsal root b. collateral c. paravertebral d. prevertebral e. terminal
8. A gland that is actually a modified sympathetic ganglion is the
- a. thymus b. thyroid c. adrenal cortex d. pituitary e. adrenal medulla
9. The 3 splanchnic nerves (greater, lesser and lumbar) are routes for _____ axons to travel from paravertebral ganglia to _____.
- a. sympathetic; prevertebral ganglia
 - b. parasympathetic; prevertebral ganglia
 - c. sympathetic; target organs
 - d. parasympathetic; target organs
 - e. sympathetic; sympathetic nerves to the heart, lungs, esophagus and thoracic blood vessels
10. Epinephrine, norepinephrine, and dopamine
- a. enhance the activity of the parasympathetic nervous system
 - b. are hormones involved in the relaxation response
 - c. are catecholamines that aid in digestion and
 - d. complement the actions of postganglionic sympathetic neurons
11. The celiac, superior mesenteric and inferior mesenteric ganglia are points of contact between

- a. preganglionic and postganglionic parasympathetic neurons
- b. sympathetic and parasympathetic neurons
- c. the splanchnic and pelvic splanchnic nerves
- d. preganglionic sympathetic neurons and the inferior hypogastric (pelvic) plexus
- e. neurons whose function is to reduce digestive action and increase blood glucose

12. Parasympathetic nerve impulses leave the brain through cranial nerves

- a. I, II, III and IV
- b. III, IV, VI and X
- c. VII, VIII, IX and X
- d. VII, IX, X, and XI
- e. III, VII, IX and X

13. The cardiac, pulmonary and esophageal plexuses that are derived from the vagus nerves are _____ and are located in the _____.

- a. sympathetic; neck
- b. parasympathetic; abdominal aortic plexus
- c. sympathetic; mediastinum
- d. sympathetic; abdominal aortic plexus
- e. parasympathetic; mediastinum

14. Autonomic nerve impulses from S2-S4 are _____ and reach their target organs through _____.

- a. parasympathetic; splanchnic nerves
- b. parasympathetic; pelvic nerves
- c. sympathetic; splanchnic nerves
- d. sympathetic; pelvic nerves
- e. parasympathetic; pelvic splanchnic nerves

15. The vagal trunks originate at the _____ and contribute to the _____.

a. brainstem; cardiac, pulmonary and esophageal plexuses

b. neck; pelvic splanchnic nerves

c. lower end of the esophagus; abdominal aortic plexus

d. lower portion of the mediastinum; splanchnic nerves

16. Most sympathetic postganglionic fibers are

a. adrenergic b. cholinergic

17. _____ parasympathetic postganglionic fibers are adrenergic.

a. all b. most c. some d. no

18. Acetylcholine binds to _____ receptors.

a. alpha 1 adrenergic b. alpha 2 adrenergic c. muscarinic d. beta1 adrenergic e. beta 2 adrenergic

19. All skeletal muscles possess _____ receptors and most smooth muscles possess _____ receptors.

a. alpha 1 adrenergic; alpha 2 adrenergic

b. muscarinic; nicotinic

c. nicotinic; muscarinic

d. nicotinic; alpha 1 adrenergic

e. nicotinic; alpha 2 adrenergic

20. The parasympathetic fibers _____ the walls of the urinary bladder and _____ the internal urinary sphincter.

a. relax; contract

b. contract; relax

c. have no effect on; contract

d. contract; have no effect on

e. relax; have no effect on

21. The binding of norepinephrine (NE) to beta adrenergic receptors in cardiac muscle is

a. excitatory b. inhibitory c. without any effect

22. The binding of NE to alpha adrenergic receptors in peripheral blood vessels causes _____ and to beta adrenergic receptors in the heart's coronary blood vessels causes _____.

- a. vasodilation; vasoconstriction
- b. vasoconstriction; vasodilation
- c. no effect; vasoconstriction
- d. no effect; vasodilation

23. The most significant example of ANS control of a body function without dual innervation is the regulation of

- a. pupil size
- b. heart rate
- c. gastrointestinal peristalsis
- d. blood pressure and blood flow to skeletal muscles

24. If a chemical causes dilation of the pupil of the eye, what effect would you predict this same chemical would have on gastric and intestinal secretions? It would

- a. decrease gastric and intestinal secretions
- b. increase gastrointestinal secretions
- c. have no effect on gastrointestinal secretions

25. Which of the following situations might result in increased activity from the cranio-sacral division of the ANS?

- a. Riding a noisy bus.
- b. Quietly eating lunch.
- c. Taking a difficult exam.
- d. both a and c

26. Which set of responses would occur due to increased parasympathetic activity?

- a. Bronchiole constriction, decreased heart rate, decreased breathing rate
- b. Bronchiole constriction, increased heart rate, increased breathing rate
- c. Bronchiole dilation, increased heart rate, increased breathing rate
- d. Bronchiole dilation, decreased heart rate, increased breathing rate

27. The most important CNS integrating center for autonomic function is the

- a. cerebral cortex
- b. reticular formation
- c. hypothalamus
- d. spinal cord

28. How many neurons would be involved in the reflex for urinary bladder emptying in a newborn baby assuming one association neuron functions within the reflex arc?

- 1. 1
- 2. 2
- 3. 3
- 4. 4
- 5. 5

29. Phenylephrine, a drug found in allergy and cold medicines like Chlor-Trimeton and Dimetapp, is _____ and aids breathing by stimulating _____ receptors and dilating bronchioles.

- a. sympatholytic; alpha 2
- b. sympathomimetic; alpha 1
- c. parasympatholytic; beta 1
- d. parasympathomimetic; beta 2

30. Cocaine acts to produce a rush of good feelings by _____ at CNS synapses.

- a. acting as a dopamine mimic
- b. blocking serotonin re-uptake
- c. blocking dopamine re-uptake
- d. acting as an inhibitor of dopamine breakdown (MAO inhibitor)

31. Caffeine stimulates us by _____ which is a CNS inhibitory neurotransmitter.

- a. blocking the action of serotonin
- b. enhancing the action of dopamine
- c. acting like norepinephrine
- d. competing with adenosine

32. Prozac elevates mood and increases feelings of self-esteem by

- a. blocking serotonin re-uptake
- b. blocking dopamine re-uptake
- c. acting as a sympathomimetics in the CNS
- d. acting as a parasympatholytics in the CNS

33. Pilocarpine is taken by people with glaucoma because it is a _____ and increases fluid drainage from the eye.

- a. parasympathomimetics
- b. sympathomimetics
- c. sympatholytics

d. parasympatholytics

34. Nerve gas, like many insecticides, causes muscular spasms and suffocation because it

a. mimics acetylcholine and increases synaptic transmission

b. destroys acetylcholine and paralyzes the muscles

c. mimics cholinesterase and increases acetylcholine destruction

d. destroys cholinesterase which allows acetylcholine to work at synapses without let-up

35. One might save oneself from a weapon of mass destruction, VX nerve gas, by injecting atropine right into the heart at the time of exposure to the gas. This can save you because atropine binds to the heart's _____ preventing their overstimulation that would cause you to die with your heart in a state of spastic paralysis.

a. nicotine receptors

b. alpha 1 receptors

c. muscarinic receptors

d. beta 2 receptors

36. _____ can help individuals with heart disease because they prevent increases in heart rate and blood pressure.

a. Alpha blockers

b. Parasympatholytics

c. Sympathomimetics

d. Beta blockers

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