

Human Physiology 2 Exam 3

SECTION A: MULTIPLE CHOICE QUESTIONS

1. The sympathetic response in a “fight or flight” reaction causes a decrease in
 - a. The arterial blood pressure
 - b. The diameter of the pupil
 - c. The resistance of the airways
 - d. The blood glucose concentration

2. Meissner’s corpuscles are located in the
 - a. Deep layer of the dermis
 - b. In the hairless portion of the skin (finger tips, palms and lips)
 - c. Epithelial layer
 - d. Connective tissues.

3. The iris has a special role of regulating the amount of light entering the eye. Bright light causes the
 - a. Circular muscle of the iris to contract, causing pupil constriction
 - b. Circular muscle of the iris to relax, causing pupil constriction
 - c. Circular muscle of the iris to contract, causing pupil dilation
 - d. Radial muscles of the iris to contract causing pupil dilation

4. The functions of Myelencephalon (Medulla) are
 - a. Vestibular control of eye movements, Respiratory and urinary bladder control
 - b. Brainstem reflexes, cardiovascular control, respiratory control
 - c. Control of eye movements, motor control and acoustic relay
 - d. Sensory and motor relay to cerebral cortex

5. The functions of Diencephalon are: -
 - a. Autonomic and endocrine control
 - b. Sensory and motor relay to cerebral cortex
 - c. Learning, memory; cognition; Sensory perception; motor planning and movement
 - d. Motor control, motor learning

6. The major light refractive part of the eye is: -
 - a. Cornea
 - b. Iris
 - c. Lens
 - d. Aqueous humor

7. Which of the following set of special sensory information is transduced through chemo-receptors: -
 - a. Touch and sight
 - b. Hearing and smell
 - c. Taste and smell

d. Taste and touch

8. The specific neurotransmitter at the parasympathetic post ganglionic nerve ending is: -

- a. Acetylcholine
- b. Adrenaline
- c. Glutamine
- d. Glycine

9. Indicate whether the following statements are True or False

- a. Rods are highly sensitive to light and function in dim light
- b. Rhodopsin pigment in the Rods requires Vitamin A for activation

10. The part of the brain mainly concerned with regulation of primitive functions for survival is:

- a. Cerebrum
- b. Brainstem
- c. Cerebellum
- d. Diencephalon

11. Muscarinic receptors are found in:

- a. Motor end plate of skeletal muscle cells
- b. All ganglionic neurons
- c. The hormones producing cells of adrenal glands
- d. All effector cells stimulated by post-ganglionic cholinergic fibers

12. The following statements are not true about Epinephrine and Norepinephrine EXCEPT?

- a. Binding of NE in Beta-1 receptors of cardiac muscles prods the heart into vigorous activity
- b. Binding of Epinephrine in Beta-2 receptors of bronchioles smooth muscles causes it to constrict
- c. Binding of NE in Beta-2 receptors of smooth muscle walls of digestive and urinary visceral organs causes them to constrict
- d. Binding of Epinephrine in Beta-3 receptors of adipose tissue inhibits lipolysis of fat cells

13. The following statements are true about ventricles of the brain EXCEPT?

- a. The paired lateral ventricles are large C-shaped chambers that reflect the pattern of cerebral growth
- b. Posterior, the lateral ventricles are separated by a thin median membrane called septum pellucidum
- c. Each lateral ventricle communicates with the third ventricle in the diencephalon via foramen of Monro
- d. The third ventricle is continuous with the fourth ventricle via cerebral aqueduct that runs through the mid brain.

14. The motor area of the cortex that controls skilled motor activity is:

- a. Broca's area
- b. Premotor cortex
- c. Frontal eye field
- d. Primary motor cortex

15. The visual sensory area of the cortex is located in:

- a. Occipital lobe
- b. Parietal lobe
- c. Temporal lobe
- d. Frontal lobe

16. The emotional or affective (feeling) region of the brain is:

- a. The limbic system
- b. The reticular system
- c. The cerebellum
- d. The mid brain

17. Which stage of NREM sleep has the following characteristics: eyes closed, relaxation begins, a drifting sensation occurs, vital signs are normal, EEG shows Alpha waves, and arousal is easy:

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

18. All the following are functions of cerebellum EXCEPT:

- a. Processes information from cerebral motor cortex
- b. Processes information from proprioceptors, visual and equilibrium pathways
- c. Provides information to cerebral motor cortex that result in proper posture, balance and smooth, coordinated skeletal muscle movement
- d. Localizes and interpret sensory stimuli, control voluntary and skilled skeletal muscle activity

19. Which motor area of the cortex is responsible for speech?

- a. Broca's area
- b. Premotor cortex
- c. Frontal eye field
- d. Primary motor cortex

20. From the basement membrane outwards, the strata of the epidermis are:

- a. Corneum, granulosum, spinosum, basale
- b. Basale, spinosum, granulosum, corneum
- c. Lucidum, basale, granulosum, corneum
- d. Granulosum, spinosum, basale, corneum

SECTION B: SHORT ANSWER QUESTIONS (40 marks)

1. Illustrate the ways in which the skin regulates body temperature (8 marks)
2. Describe the protection of the Central nervous system (8 marks)
3. With aid of a diagram explain the formation and flow of cerebro-spinal fluid (6 marks)
4. Using a diagram, describe a reflex arc (8 marks)
5. Describe the physiological processes involved in inflammatory response (8 marks)

SECTION C: LONG ANSWER QUESTIONS (40 marks)

1. Draw and label a structure of the ear and describe physiology of hearing (20 marks)
2. Describe the physiology behind autonomic nervous system (20 marks)

