

Human Bio- Final Study Guide

1. What is the largest portion of the brain called?
The central nervous system
2. List and describe the four different lobes.
 - a. Frontal lobe: primary motor area and conscious thought
 - b. Temporal lobe: primary auditory, smell, and speech area
 - c. Parietal lobe: primary somatosensory and taste area
 - d. Occipital lobe: primary visual area
3. Write the definitions:
Cerebral Cortex: thin, outer layer of gray matter
Primary motor area: voluntary control of skeletal muscle
Primary somatosensory area: for sensory information from skeletal muscle and skin
Association areas: integration occurs here
Processing centers: perform higher level analytical functions
4. What is included within the diencephalon?
 - a. Hypothalamus - helps maintain homeostasis (hunger, sleep, thirst, body temperature, and water balance) and controls pituitary gland
 - b. Thalamus - 2 masses of gray matter that receive all sensory input except smell; involved in memory and emotions
 - c. Pineal gland - secretes melatonin that controls our daily rhythms
5. Describe each of these.
See #4
6. What does the Cerebellum do?
Receives and integrates sensory input from the eyes, ears, joints and muscles about the current position of the body.
7. What is included within the brain stem?
 - a. Midbrain - relay station between the cerebrum and spinal cord or cerebellum; reflex center
 - b. Pons - a bridge between cerebellum and the CNS; regulates breathing rate; reflex center for head movements
 - c. Medulla oblongata - contains reflex centers for regulating breathing, heartbeat, and blood pressure
 - d. Reticular formation - major component of the reticular activating system (RAS) that regulates alertness
8. Define each of these.
See #7
9. What does the reticular formation do?
Regulates alertness
10. Describe what the limbic system does?

- a. Joins primitive emotions (i.e., fear, pleasure) with higher functions such as reasoning.
 - b. Can cause strong emotional reactions to situations but conscious thought can override & direct our behavior.
11. List and define the two things that are within this system.
- a. - Amygdala - imparts emotional overtones
 - b. - Hippocampus - important to learning and memory
12. List and define the eight higher functions of the brain.
- Learning - what happens when we recall and use past memories to gain new information
 - Memory - ability to hold a thought or to recall past events
 - Short-term memory - retention of information for only a few minutes
 - Long-term memory - retention of information for more than a few minutes and includes the following
 - Episodic memory - people and events
 - Semantic memory - numbers and words
 - Skill memory - performing skilled motor activities (i.e., riding a bike)
 - Language - depends on semantic memory
13. Fill in the blanks:
- Peripheral Nervous System- includes cranial nerves, spinal nerves and ganglia outside the CNS
- Cranial nerves- conduct impulses to and from the brain
- Spinal Nerves- conduct impulses to and from the spinal cord
- The ganglia is located _____ the CNS
- outside
14. What does the Somatic Division do?
- Serves the skin, skeletal muscles and tendons. Automatic responses are called reflexes
15. What does the Autonomic Division do?
- Regulates the activity of involuntary muscles and glands
16. What does the Sympathetic Division do?
- Coordinates the body for the "fight or flight" response by speeding up metabolism, heart rate, and breathing while slowing down and regulating other functions
17. What does the Parasympathetic Division do?
- Counters the sympathetic system by bringing up a relaxed state by slowing down metabolism, heart rate, and breathing, and returning other functions to normal
18. **Look over Drugs and Drug abuse, also be familiar with the general main things they do (Slide 38)
19. Describe the endocrine system: What it's comprised of, what it secretes, and Results.
- Comprised of mostly glands
- Secretes hormones that move through the bloodstream to target cells
- Results in a slow but a prolonged response
20. Define a target cell.

21. Define Endocrine and Exocrine.

Endocrine: secrete their products (hormones) directly into the bloodstream

Exocrine: secrete their products (enzymes) into ducts that carry these products to other organs or outside the body

22. What are hormones?

Chemical signals that promote communications between cells, body parts and even individuals

23. List and describe the two types of hormones.

Peptide- bind to a receptor in the plasma membrane causing the formation of CAMP which activates a cascade of enzymes

Steroid- lipids that enter a cell and affect gene activity and thus protein synthesis

24. List the steps for each.

25. Fill in the Chart:

Name	Function
Hypothalamus	Regulates internal environment through the autonomic nervous system -helps control heartbeat, water balance, glandular secretions
Posterior Pituitary Gland	Stores antidiuretic hormone and oxytocin that are produced by neuroendocrine cells in hypothalamus
Anterior Pituitary Gland	Controlled by hypothalamic releasing and hypothalamic inhibiting hormones
Thyroid Gland	Large gland below larynx, iodine is needed in the diet to allow thyroid gland to produce its hormones
Parathyroid Glands	Small glands embedded on the surface of the thyroid gland, produces parathyroid hormone
Adrenal Glands	Glands that sit on top of the kidneys -Adrenal Medulla -Adrenal Cortex
Pancreas	Fish shaped organ behind the stomach compose of 2 tissues Exocrine which produces and secretes digestive juices and endocrine which produces and secretes hormones insulin and glucagon
Testes	Paired gonads in males that produce androgens (testosterone) also stimulates growth of penis and testes
Ovaries	Paired gonads in females, produce estrogen and progesterone and help eggs to mature
Thymus	Lies beneath sternum, secretes hormones called thymosins that aid in differentiation of lymphocytes
Pineal Gland	Located in the brain, secretes melatonin that regulates sleep/wake cycle

26. List and describe the different Hormones produced by the Anterior Pituitary Gland.