

Name : _____

Date: _____

The Nervous System - N : Review #2

Divisions of the Nervous System and the Brain:(Learning Outcome N1 – N2)

Read pp. 334-33

L.O N-1 Continued:

- ___ 1. The peripheral nervous system includes all nerves that arise/branch off from which two areas of the central nervous system?
- ___ 2. Nerves that come directly from the brain are called _____ nerves.
- ___ 3. Almost all of these nerves (mentioned in question #2) serve the face and the neck, except for one special type. Name this special cranial nerve that services many of the key organs in the thoracic and abdominal regions of the body.
- ___ 4. List two specific organs that are serviced by this cranial nerve.
- ___ 5. The nerves that branch off of the spine are called "spinal nerves", these nerves are classified as being "MIXED nerves", what does this mean?
- ___ 6. Name the three main types of nerves (based on the type of neurons they are formed from) that are found as part of the peripheral nervous system.
- ___ 7. What kind of neurons make up the dorsal root (portion) of the mixed spinal nerves?
- ___ 8. What part of these sensory neurons specifically makes up a dorsal root ganglion?
- ___ 9. What kind of neurons make up the ventral portion (ventral root) of the spinal nerves?
- ___ 10. There are two subsystems or divisions that make up the peripheral nervous System, one division is called the SOMATIC System, the other is called the AUTONOMIC System. Describe the functional difference between these two.
- ___ 11. Which system would service your voluntary skeletal muscles, example walking.
- ___ 12. Which system would service the external sense organs, such as transmitting touch and pressure?
- ___ 13. Which system would automatically handle key vital organs?
- ___ 14. Name the two subdivisions of the autonomic nervous system.
- ___ 15. Do either of these subdivisions (mentioned in question #14) require any thought?

L.O. N – 2 Sympathetic vs. Parasympathetic Nervous System

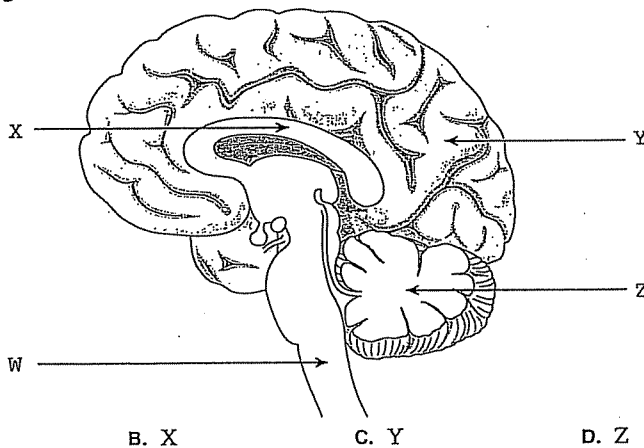
- ___ 1. Think of a good clue or memory device to remember which division is EXCITATORY/EMERGENCY and which is NORMAL. And write this clue down.
- ___ 2. List three things that both the sympathetic and parasympathetic systems have in common with each other.
- ___ 3. Where is the cell body of the first neuron (preganglionic neuron) located for either system?
- ___ 4. Where the bundle of neurons #1 meet the cell bodies of the bundle of neurons #2, what swollen structure forms?
- ___ 5. What is the name given for the axon closest to the spinal cord? (See Diagrams on p. 337)

OVER →

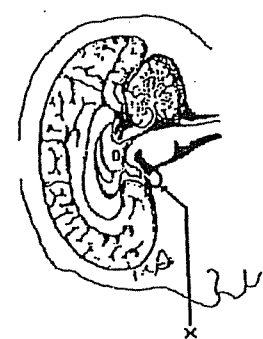
- ___ 6. What is the name for the axon further away from the spinal cord?
- ___ 7. How do the lengths of the pre and post ganglionic axons differ in the Sympathetic system?
- ___ 8. How do the lengths of the pre and post ganglionic axon differ in the Parasympathetic system?
- ___ 9. Where is the ganglion located in the Sympathetic system?
- ___ 10. Where is the ganglion located in the Parasympathetic system?
- ___ 11. Under what circumstances will the Sympathetic system be activated?
- ___ 12. Why is the Sympathetic System often referred to as the "fight or flight system"?
- ___ 13. How will the sympathetic system affect your bodily organs, such as heart, eyes, lungs, liver and digestive system. List specific response for each.
- ___ 14. What is the transmitter substance used by the sympathetic system?
- ___ 15. From which parts (regions) of the central nervous system (brain and spinal cord) do the nerves of the parasympathetic system arise?
- ___ 16. From which parts of the CNS do the nerves of the sympathetic system arise?
- ___ 17. Under what circumstances will the parasympathetic system be active?
- ___ 18. How will the parasympathetic system affect your bodily organs such as heart, pupils, lungs, liver and digestive system. List specific response for each.
- ___ 19. What is the neurotransmitter substance used in the parasympathetic system?

PRACTICE QUIZ:

1. Which of the following indicates the part of the brain containing reflex centres for swallowing and vomiting?



- A. W B. X C. Y D. Z



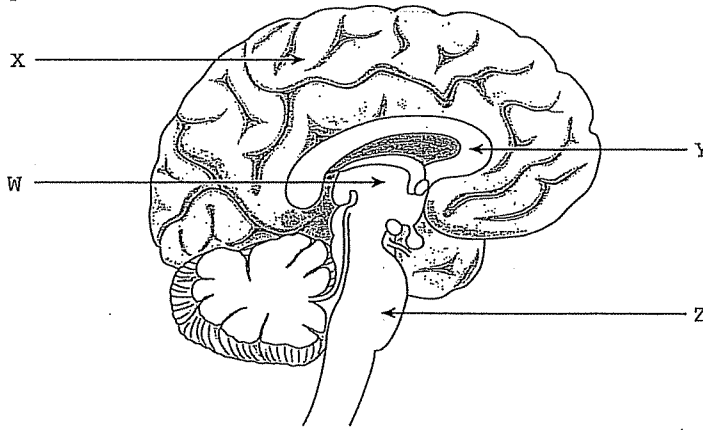
- D. pituitary gland.
C. hypothalamus.
B. medulla.
A. pons.

2. When frightened, a person's pupil size increases. The part of the nervous system that controls this response is the:
 A. peripheral nervous system. B. somatic nervous system.
 C. sympathetic nervous system. D. parasympathetic nervous system.
3. The part of the brain responsible for consciousness is the
 A. cerebrum. B. cerebellum. C. hypothalamus. D. pituitary gland.
4. After a "fight or flight" response, parasympathetic nervous system stimulation will cause
 A. pupils to dilate. B. peristalsis to decrease.
 C. the bronchioles to dilate. D. the heart rate to decrease.
5. Which of the following interacts with the pituitary gland as the neuroendocrine control centre?
 A. Thalamus. B. Cerebellum. C. Hypothalamus. D. Medulla oblongata.

Structure X represents the:

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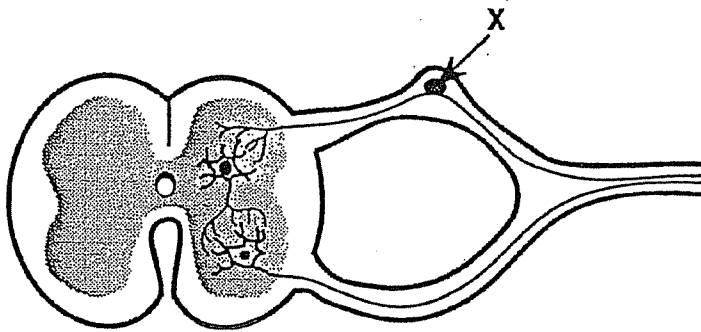
7 Which of the following structures sorts incoming sensory stimuli and channels them to the appropriate part of the brain?



- A. W B. X C. Y D. Z

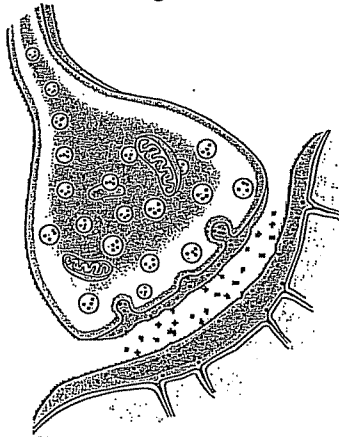
8 The occipital lobe of the cerebral cortex has association areas for:
 A. taste. B. smell. C. vision. D. hearing.

In the diagram below, X indicates the:



- 9 A. cell body of the interneuron. B. cell body of the motor neuron.
 C. cell body of the sensory neuron. D. synapse between sensory and interneuron.

The diagram below shows a synapse in the parasympathetic nervous system during the transmission of an impulse. What is the substance being released into the cleft?



- 10 A. Sodium ions. B. Noradrenalin. C. Calcium ions. D. Acetylcholine.

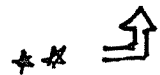
11 A drug was observed to have the following effects on an individual:

- increased breathing rate
- increased blood pressure
- increased heart rate

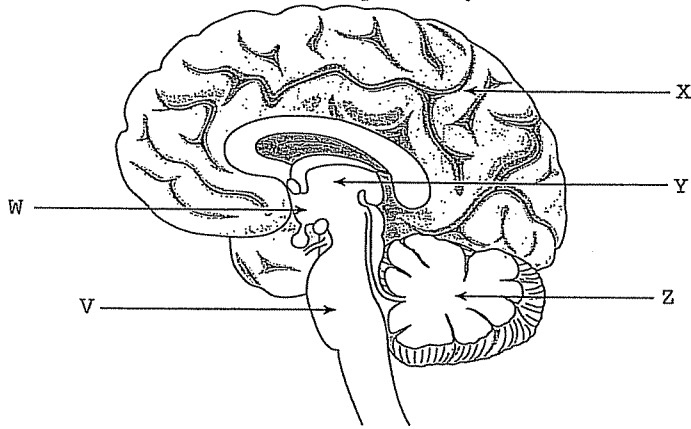
The part of the brain affected by this drug is the

- A. thalamus. B. cerebellum. C. corpus callosum. D. medulla oblongata.

12. Which of the following is a true statement about the sympathetic and parasympathetic nervous systems?
 A. Sympathetic system causes increased rates of digestion while the parasympathetic system causes decreased rates of digestion.
 B. Sympathetic system causes decreased breathing rate while the parasympathetic system causes increased breathing rate.
 C. Sympathetic system causes constriction of the iris while the parasympathetic system causes dilation of the iris.
 D. Sympathetic system causes increased heart rate while the parasympathetic system decreases heart rate.
- 13 A person with a damaged medulla oblongata would have difficulty
 A. reading. B. breathing. C. tasting food. D. problem solving.

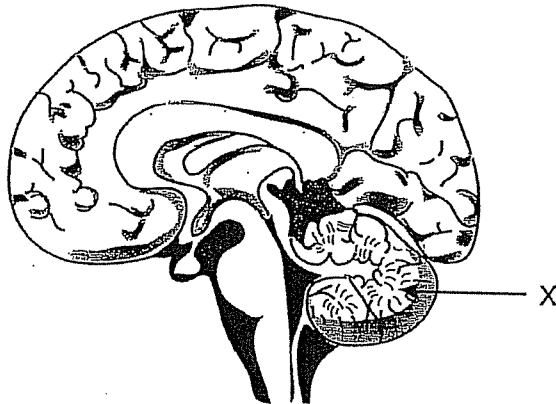


Use the following diagram to answer question 14 to 15



- 14 The function of the structure labelled Y is to
 A. coordinate balance. B. initiate a reflex arc.
 C. regulate breathing rate. D. sort incoming sensory impulses.
- 15 Which letter indicates the structure that integrates control of the endocrine glands by the nervous system?
 A. V B. W C. X D. Z
- 16 The portion of the brain involved in speech, vision, learning and memory is the
 A. cerebrum. B. cerebellum. C. hypothalamus. D. medulla oblongata.

An injury resulting in damage to area X would result in:



- 17 A. loss of vision. B. loss of memory.
 C. breathing difficulty. D. impaired coordination.
- 18 The part of a sensory neuron most likely to be damaged if your arm is cut is a(n):
 A. axon. B. effector. C. dendrite. D. neural cell body.
- 19 Damage to the corpus callosum could:
 A. stimulate the parasympathetic system.
 B. increase the heart rate but decrease the breathing rate.
 C. inhibit the hypothalamus and stimulate the thyroid gland.
 D. inhibit the sharing of information between cerebral hemispheres.
- 20 If a person suffered from a disease that damaged the somatic nervous system, the probable result would be the loss of:
 A. peristalsis. B. consciousness.
 C. skeletal muscle control. D. involuntary muscle control.
- 21 Which of the components of the nervous system has both autonomic and somatic divisions?
 A. Central. B. Peripheral. C. Sympathetic. D. Parasympathetic.

Fluid taken from the area surrounding actively contracting intestines was placed around an isolated heart. This fluid, which contains a neurotransmitter as a result of intestinal stimulation, will:
 A. slow the heart rate.
 B. make the heart cells gain water.
 C. stimulate oxygen uptake by heart cells.
 D. accelerate contraction of the ventricles.

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