ALBERTA BIOLOGY 30 · UNIT A · 25 QUESTIONS

Nervous & Endocrine Systems — Practice Test

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

1 **The part of a neuron that receives incoming signals from other neurons or from sensory receptors is the**

- **A** axon
- **B** dendrite
- **C** myelin sheath
- **D** node of Ranvier

Understand It with Pulse | Flag a mistake

2 **The resting potential of a neuron is maintained primarily by**

A the sodium-potassium pump, which moves sodium ions out of the neuron and potassium ions into the neuron

B sodium channels that remain permanently open in the membrane of the axon

C chloride ions that are pumped into the neuron

D the myelin sheath, which generates an electrical charge

Understand It with Pulse | Flag a mistake

3 **The division of the nervous system that consists of the brain and the spinal cord is the**

A autonomic nervous system

B somatic nervous system

C central nervous system

D peripheral nervous system

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4 **Insulin is secreted by**

A beta cells in the islets of the pancreas

B the adrenal cortex

C the anterior pituitary gland

D the thyroid gland

Understand It with Pulse | Flag a mistake

5 **Before they are released into the synaptic cleft, neurotransmitter molecules are stored in**

A the dendrites of the postsynaptic neuron

B the myelin sheath

C synaptic vesicles in the axon terminal

D the nodes of Ranvier

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6 **When a stimulus causes the membrane potential of a neuron to reach threshold level, the first event that occurs is**

A voltage-gated sodium channels open and sodium ions rush into the neuron

B voltage-gated potassium channels open and potassium ions rush out of the neuron

C synaptic vesicles release neurotransmitter into the cleft

D the sodium-potassium pump stops working

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7 **Which of the following sequences correctly shows the pathway of a nerve impulse through a reflex arc?**

A receptor, motor neuron, interneuron, sensory neuron, effector

B receptor, sensory neuron, motor neuron, interneuron, effector

C effector, sensory neuron, interneuron, motor neuron, receptor

D receptor, sensory neuron, interneuron, motor neuron, effector

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8 **The photoreceptors that allow a person to see in dim light, but do not detect colour, are the**

A cones

B rods

C ganglion cells

D bipolar cells

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9 **After a meal, a rise in blood glucose stimulates the release of insulin. As blood glucose falls, insulin release decreases. This is an example of negative feedback because the response**

A amplifies the original rise in blood glucose

B permanently stops all hormone release from the pancreas

C is carried out by the nervous system instead of hormones

D counteracts the original change in blood glucose

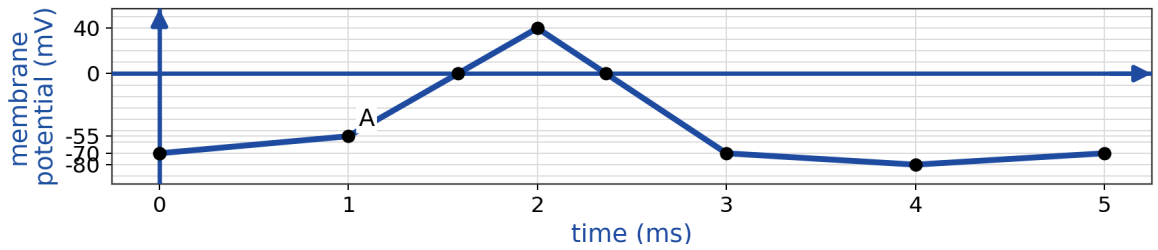
Understand It with Pulse | Flag a mistake

10 **Sound vibrations are converted into nerve impulses by**

- **A** the ossicles in the middle ear
- **B** the tympanic membrane
- **C** hair cells in the cochlea
- **D** the auditory nerve

Understand It with Pulse | Flag a mistake

11 **The graph shows membrane potential over time during an action potential. Point A marks the threshold. What is the membrane potential at point A, in millivolts? Record your answer as a number.**



ANSWER _____

Understand It with Pulse | Flag a mistake

12 **In multiple sclerosis, the myelin sheaths surrounding some axons are gradually destroyed. Impulses along affected axons slow down or fail because**

- **A** without insulation, charge leaks across the membrane, so the next section of the axon is depolarized more slowly
- **B** the axon can no longer generate any action potentials
- **C** the sodium-potassium pumps in the axon stop functioning
- **D** neurotransmitter production in the dendrites increases

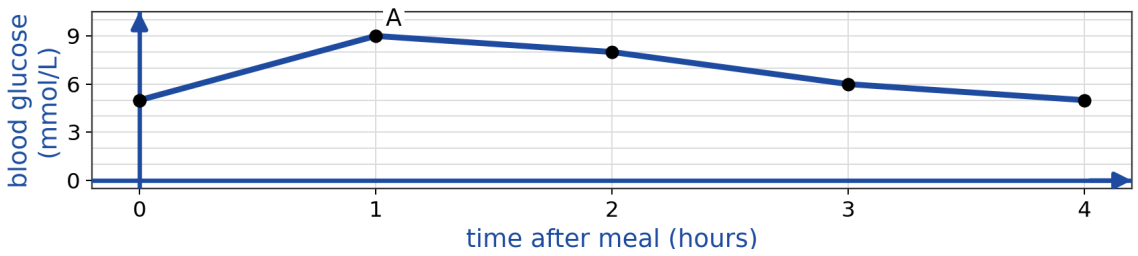
Understand It with Pulse | Flag a mistake

13 **A toxin prevents acetylcholine from binding to receptors on the postsynaptic membrane of a neuromuscular junction. The most likely result of this blockage is that**

- **A** the muscle will not be stimulated and will remain relaxed
- **B** the muscle will remain in a state of continuous contraction
- **C** the motor neuron will release more acetylcholine into the cleft
- **D** the postsynaptic membrane will repolarize more quickly than normal

Understand It with Pulse | Flag a mistake

14 **The graph shows blood glucose concentration after a meal. Point A marks the highest blood glucose concentration shown. What is the blood glucose concentration at point A, in millimoles per litre? Record your answer as a number.**



ANSWER _____

Understand It with Pulse | Flag a mistake

15 **A teenager is diagnosed with a condition in which blood glucose remains high and little or no insulin is produced. Tests show that the immune system has destroyed cells in the pancreas. The underlying cause of this condition is the destruction of**

A insulin receptors on the surface of liver cells

B the insulin-producing beta cells of the pancreas

C the cells of the thyroid gland that produce thyroxine

D receptors for ADH in the kidneys

Understand It with Pulse | Flag a mistake

16 **When the level of calcium in the blood falls, a hormone is released that stimulates the release of calcium from bone. The hormone and the gland that secretes it are**

A Hormone: calcitonin Gland: thyroid gland

B Hormone: calcitonin Gland: parathyroid glands

C Hormone: parathyroid hormone Gland: thyroid gland

D Hormone: parathyroid hormone Gland: parathyroid glands

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17 **Some Components of a Reflex Arc 1 A motor neuron carries an impulse to a muscle 2 A sensory neuron carries an impulse toward the spinal cord 3 The muscle contracts 4 An interneuron in the spinal cord relays the impulse After a receptor detects a stimulus, the components above function in the order ____, ____, ____, and ____. Record your answer as a four-digit code.**

ANSWER _____

Understand It with Pulse | Flag a mistake

18 **A gymnast suffers damage to one region of the brain. Afterwards, she has difficulty maintaining balance and her movements are uncoordinated, although her muscles are not weak. The damaged region of the brain is most likely the**

A cerebrum

B cerebellum

C medulla oblongata

D hypothalamus

Understand It with Pulse | Flag a mistake

19 **During a sudden frightening event, the hormone that is responsible for the immediate increase in heart rate and blood glucose level is**

A epinephrine

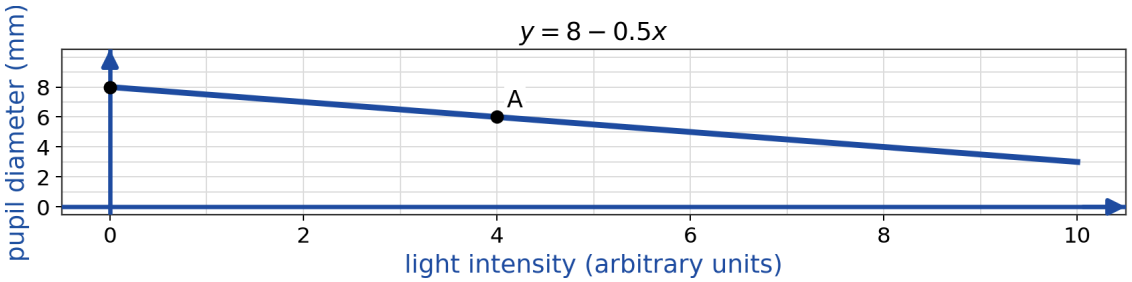
B cortisol

C insulin

D aldosterone

Understand It with Pulse | Flag a mistake

20 **The graph shows pupil diameter as light intensity changes. Point A is on the curve. What is the pupil diameter at point A, in millimetres? Record your answer as a number.**



ANSWER

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21 **A patient complains of weight gain, fatigue, and feeling cold. Blood tests show a low level of thyroxine and a higher-than-normal level of TSH. The problem most likely originates in the**

A hypothalamus

B anterior pituitary gland

C thyroid gland

D adrenal gland

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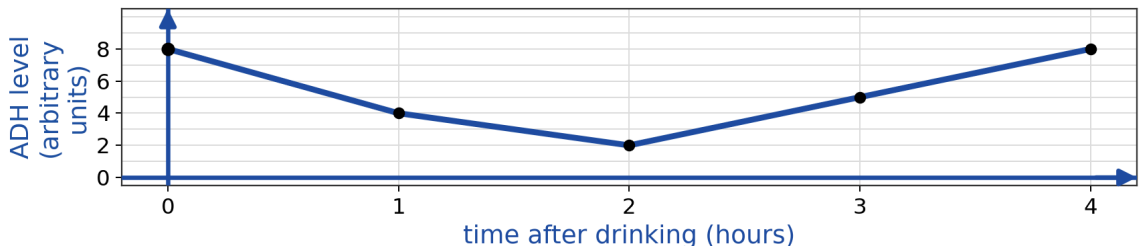
22 **After running a long distance without drinking water, a person's blood level of ADH rises. The effect of this increase in ADH is**

- **A** an increase in the volume of urine produced
- **B** a decrease in blood pressure
- **C** an increase in the reabsorption of glucose by the kidneys
- **D** an increase in the reabsorption of water by the kidneys

Understand It with Pulse | Flag a mistake

23 **The graph shows ADH level over time after a person drinks a large volume of water. At what time, in hours after drinking, is the ADH level lowest? Record your answer as a number.**



ANSWER _____

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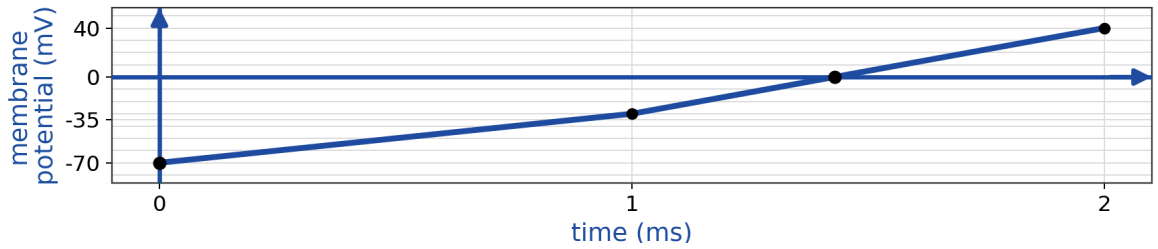
24 **Which of the following statements about synaptic transmission is correct?**

- **A** The nerve impulse jumps across the synaptic cleft as an electrical signal
- **B** Synaptic vesicles travel across the cleft to the postsynaptic neuron
- **C** Neurotransmitter molecules diffuse across the cleft and bind to receptors on the postsynaptic membrane
- **D** Neurotransmitters are produced by the postsynaptic neuron

Understand It with Pulse | Flag a mistake

25 **The graph shows membrane potential during depolarization. The total change in membrane potential, in millivolts, during depolarization to the peak is ____. Record your answer as a number.**



ANSWER _____

Understand It with Pulse | Flag a mistake

ANSWER KEY

1. B
2. A
3. C
4. A
5. C
6. A
7. D
8. B
9. D
10. C
11. -55
12. A
13. A
14. 9
15. B
16. D
17. 2413
18. B
19. A
20. 6
21. C
22. D
23. 2
24. C
25. 110

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