

## NERVOUS SYSTEM

1.	Which of the following is controlled by the somatic nervous system? A. rate of heartbeat B. contraction of skeletal muscles C. increased blood flow to muscle tissue D. movement of food through the intestines
2.	Which of the components of the nervous system has both autonomic and somatic divisions? A. Central. B. Peripheral. C. Sympathetic. D. Parasympathetic.
3.	The central nervous system includes the A. brain and spinal cord. B. somatic nervous system. C. cranial and spinal nerves. D. parasympathetic nervous system.
4.	The somatic nervous system controls A. peristalsis. B. cardiac muscles. C. smooth muscles. D. skeletal muscles.
5.	Which of the following is involved in the initiation of a "fight or flight" response? A. Thyroid gland. B. Prostate gland. C. Adrenal cortex. D. Adrenal medulla.
6.	The part of a sensory neuron that transmits nerve impulses from a receptor to the cell body is the A. axon. B. synapse. C. dendrite. D. neurotransmitter.
7.	What type of neuron transmits an impulse to the central nervous system? A. Motor. B. Sensory. C. Efferent. D. Interneuron.
8.	The type of neuron that can <b>only</b> be found in the central nervous system (CNS) is a(n) A. interneuron. B. motor neuron. C. mixed neuron. D. sensory neuron.
9.	The type of neuron that is found <b>only</b> in the central nervous system is the A. interneuron. B. motor neuron. C. mixed neuron. D. sensory neuron.
10.	Which of the following is responsible for transmitting impulses to the central nervous system (CNS)? A. Effectors. B. Interneurons. C. Motor neurons. D. Sensory neurons.
11.	Sensory neurons carry messages to A. glands. B. interneurons. C. sense organs. D. muscle fibres.
12.	Sensory receptors initiate nerve impulses in A. long axons. B. short axons. C. long dendrites. D. short dendrites.
13.	Which of the following is a characteristic of a resting potential? A. secretion of calcium ions B. neurotransmitters move into the axon C. depolarization of the post-synaptic membrane D. a net negative charge on the inside of the axon
14.	During which stage of a nerve impulse does the opening of the sodium gates play an important role? A. Recovery. B. Repolarization. C. Depolarization. D. Resting potential.
15.	Resting potential in a neuron is maintained by A. osmosis. B. diffusion. C. pinocytosis. D. active transport.
16.	Which organelle would be required in large numbers by a cell whose membrane is often depolarized? A. Ribosome. B. Lysosome. C. Mitochondrion. D. Endoplasmic reticulum.
17.	Within an axon, an increased concentration of sodium ions and a decreased concentration of potassium ions is observed during A. upswing. B. downswing. C. resting potential. D. synaptic transmission.
18.	The resting potential in a neuron is maintained by A. exocytosis. B. active transport. C. passive diffusion. D. facilitated transport.
19.	The correct sequence for the transmission of a nerve impulse along a neuron is 1. Potassium gates open. 2. Sodium ions diffuse into neuron. 3. Resting potential. 4. Recovery. A. 1, 2, 3, 4 B. 2, 3, 4, 1 C. 3, 2, 1, 4 D. 4, 3, 1, 2
20.	The correct sequence for the transmission of a nerve impulse along a neuron is 1. Potassium gates open. 2. Sodium ions diffuse into neuron. 3. Resting potential. 4. Recovery. A. 1, 2, 3, 4 B. 2, 3, 4, 1 C. 3, 2, 1, 4 D. 4, 3, 1, 2
21.	Nerve cells are called A. axons. B. neurons. C. dendrites. D. meninges.
22.	Depolarization of a nerve cell is caused by A. the sodium potassium pump. B. sodium ions entering the cell. C. the opening of the potassium gates. D. a return of membrane potential to -60mV.
23.	Depolarization of an axon results from the movement of A. sodium ions. B. hydrogen ions. C. potassium ions. D. bicarbonate ions.
24.	The distribution of sodium and potassium ions across the membrane of an axon is maintained by A. diffusion. B. exocytosis. C. phagocytosis. D. active transport.
25.	Which of the following <b>best</b> describes the location of ions during resting potential? A. A low concentration of sodium ions on the outside, and a high concentration of potassium ions on the inside of the neuron. B. A low concentration of sodium ions on the outside, and a low concentration of potassium ions on the inside of the neuron. C. A high concentration of sodium ions on the outside, and a low concentration of potassium ions on the inside of the neuron. D. A high concentration of sodium ions on the outside, and a high concentration of potassium ions on the inside of the neuron.
26.	The distribution of sodium and potassium ions during resting potential is maintained by A. osmosis. B. diffusion. C. active transport. D. facilitated transport.
27.	<b>Use the following information to answer the question.</b> 1. Sodium ions move into the axon. 2. Potassium ions move out of the axon. 3. Depolarization of the membrane occurs. 4. Repolarization of the membrane occurs. Select the correct order of the above events to describe an action potential. A. 1, 3, 2, 4 B. 2, 3, 4, 1 C. 3, 2, 4, 1 D. 1, 4, 3, 2
28.	The speed of a nerve impulse along a sensory neuron depends on the A. dendrites. B. cell bodies. C. myelin sheath. D. sensory receptors.
29.	The myelin sheath is a protective covering that surrounds A. only motor neurons. B. all types of neurons. C. only sensory neurons. D. both motor and sensory neurons.

30.	Which of the following most accurately describes the function of the nodes of Ranvier? A. Release neurotransmitters. B. Nourish and protect the neuron. C. Cause the 'all or none' response. D. Speed the transmission of nerve impulses.
31.	In order for a nerve impulse to pass from one neuron to the next, which of the following ions must be present at the pre-synaptic ending? A. Calcium ( $\text{Ca}^{2+}$ ). B. Chloride ( $\text{Cl}^-$ ). C. Phosphate ( $\text{PO}_4^{3-}$ ). D. Magnesium ( $\text{Mg}^{2+}$ ).
32.	Using the information below, what is the correct order for the transmission of an impulse across a synapse? 1. Calcium interacts with proteins. 2. Vesicles fuse with synaptic membrane. 3. Neurotransmitter diffuses into synaptic cleft. 4. Receptor sites are occupied. A. 1, 2, 3, 4 B. 2, 3, 1, 4 C. 3, 2, 1, 4 D. 4, 1, 3, 2
33.	At a synapse, the neurotransmitters move to the receptor sites by A. osmosis. B. diffusion. C. active transport. D. facilitated transport.
34.	At a synapse, the neurotransmitters move to the receptor sites by A. osmosis. B. diffusion. C. active transport. D. facilitated transport.
35.	34. The function of enzymes in the synaptic cleft is to ensure that A. neurotransmitters are released. B. neurotransmitters are destroyed. C. nerve impulses reach receptor sites. D. nerve impulses travel in both directions.
36.	The neurotransmitter used by the sympathetic nervous system is A. gastrin. B. noradrenalin. C. acetylcholine. D. acetylcholinesterase.
37.	Once a neurotransmitter has been released, it has only a short time to act because A. enzymes inactivate it. B. receptor sites break down. C. calcium ions flow into the cleft. D. the postsynaptic membrane closes.
38.	Nerve impulses are not continuously generated at a synapse because A. there are insufficient calcium ions. B. the presynaptic membrane is depolarized. C. the synaptic membranes become impermeable. D. neurotransmitters are broken down by enzymes.
39.	In an axon, the nerve impulses normally travel A. in both directions. B. toward the cell body. C. away from the cell body. D. faster as they are unmyelinated.
40.	Which of the following substances would <b>not</b> be found in synaptic clefts? A. Noradrenalin. B. Acetylcholine. C. Cholinesterase. D. Carbonic anhydrase.
41.	<b>Use the following information to answer the question:</b> 1. Axon 2. Dendrite 3. Cell body 4. Receptor The correct order for the transmission of an impulse along a sensory neuron is A. 3, 1, 4, 2 B. 3, 2, 1, 4 C. 4, 1, 3, 2 D. 4, 2, 3, 1
42.	Nerve impulses travel in only one direction because of the location of the A. effectors. B. myelin sheath. C. synaptic vesicles. D. nodes of Ranvier.
43.	The speed of nerve impulse conduction is increased by the presence of A. axons. B. myelin. C. dendrites. D. cell bodies.
44.	Transmission across a synapse is one-way because A. the axon is myelinated. B. the potassium gates are open. C. the interior of the axon contains negative ions. D. the receptor sites are on the postsynaptic membrane.
45.	Neurotransmitters may create an action potential when they A. fit into receptor sites. B. move through protein pores. C. are broken down in the synapse. D. excite the presynaptic membrane.
46.	A pesticide that destroys an enzyme found in the synaptic cleft may cause A. denaturation of the presynaptic contractile proteins. B. an increased rate of diffusion across the synaptic cleft. C. continued depolarization of the postsynaptic membrane. D. alteration of the receptors on the presynaptic membrane.
47.	Which of the following would be contained within the central nervous system? A. A neuron connecting the sensory and motor neurons. B. A sensory nerve running from a hand to the spinal cord. C. A motor nerve going from the brain to a skeletal muscle. D. A nerve running from the spinal cord to the stomach wall.
48.	In a reflex arc, interneurons initiate nerve impulses in A. effectors. B. motor neurons. C. sensory neurons. D. sensory receptors.
49.	In a reflex arc, the nerve impulse is initiated by A. the brain. B. an effector. C. a sensory neuron. D. a sensory receptor.
50.	The sympathetic nervous system is responsible for A. decreasing breathing rate. B. increasing blood glucose levels. C. increasing blood flow to the intestines. D. decreasing blood flow to the skeletal muscles.
51.	In a reflex arc, the nerve impulse is initiated by A. the brain. B. an effector. C. a sensory neuron. D. a sensory receptor.
52.	In a reflex arc, the A. brain is stimulated by the effector. B. effector is stimulated before the brain. C. sensory receptor directly stimulates the effector. D. brain is stimulated at the same time as the receptor.
53.	Reflexes involve the A. autonomic nervous system and the brain. B. sympathetic and central nervous systems. C. peripheral nervous system and the spinal cord. D. parasympathetic nervous system and the cerebrum.
54.	The type of sensation a person experiences depends on the A. speed of the impulse. B. length of the dendrites. C. part of the brain stimulated. D. amount of myelin on the neuron.
55.	The parasympathetic nervous system A. controls the central nervous system. B. lowers blood pressure and promotes digestion. C. uses noradrenalin as the neurotransmitter at synapses. D. initiates the "fight or flight" response in times of stress.
56.	The secretion of noradrenalin into the synaptic cleft occurs by which of the following processes? A. exocytosis B. pinocytosis C. endocytosis D. active transport
57.	Which of the following is correctly paired? A. sympathetic nervous system stimulation and acetylcholine B. sympathetic nervous system stimulation and a relaxed state C. parasympathetic nervous system stimulation and noradrenalin D. parasympathetic nervous system stimulation and a relaxed state
58.	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.
59.	Which of the following would result from stimulation by the sympathetic nervous system? A. Hypotension. B. Constricted pupils. C. Decreased digestive rate. D. Reduced blood flow to skeletal muscles.
60.	The hormone that initiates the "fight or flight" response is produced by the A. adrenal gland. B. hypothalamus. C. pituitary gland. D. medulla oblongata.

61.	Which of the following neurons would be found in the autonomic nervous system? A. Sensory neurons in the skin. B. Sensory neurons in the spinal cord. C. Motor neurons ending in the intestines. D. Motor neurons ending in skeletal muscle.						
62.	The sympathetic nervous system would be most active while a person is A. digesting a large meal. B. in an athletic competition. C. recovering from an illness. D. writing biology definitions.						
63.	Which of the following explains why most organs are supplied by two separate autonomic nerves? A. One acts as a reserve neuron. B. One is sensory and one is motor. C. Both are needed in emergency situations. D. One stimulates the organ and one inhibits it.						
64.	Increased parasympathetic stimulation of the SA node will result in A. decreased heart rate. B. decreased heart volume. C. increased diastolic pressure. D. increased ventricular contraction rate.						
65.	Which of the following are <b>immediately</b> involved when a person is in a “fight or flight” situation? <table border="1" style="margin-left: 40px; margin-top: 10px;"> <tr> <td>1. Adrenal glands</td> <td>4. Thyroid glands</td> </tr> <tr> <td>2. Pancreas</td> <td>5. Sympathetic system</td> </tr> <tr> <td>3. Pituitary glands</td> <td>6. Parasympathetic system</td> </tr> </table> <p>A. 1, 3 B. 1, 5 C. 2, 4 D. 2, 6</p>	1. Adrenal glands	4. Thyroid glands	2. Pancreas	5. Sympathetic system	3. Pituitary glands	6. Parasympathetic system
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67.	The body’s response to immediate danger includes A. increased breakdown of protein in the stomach. B. decreased gas exchange during internal respiration. C. increased nervous stimulation of the adrenal medulla. D. decreased number of open capillary beds in skeletal muscle.						
68.	Which of the following will occur as a result of parasympathetic nervous system stimulation? A. Increased heart rate. B. Secretion of adrenalin. C. Increased breathing rate. D. Secretion of digestive enzymes.						
69.	Which of the following statements about the autonomic nervous system is <b>false</b> ? A. It controls the internal organs. B. It functions in a voluntary manner. C. It is responsible for the “fight or flight” response. D. Each impulse travels through two motor neurons and one ganglion.						
70.	A nerve to the heart is severed, resulting in a decreased heart rate. The severed nerve was likely a A. cranial nerve. B. somatic nerve. C. sympathetic nerve. D. parasympathetic nerve.						
71.	Sharing of information between the two cerebral hemispheres is possible because of the A. cerebellum. B. hypothalamus. C. corpus callosum. D. medulla oblongata.						
72.	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.						
73.	Which of the following would increase the heart rate? A. Corpus callosum. B. Somatic nervous system. C. Sympathetic nervous system. D. Parasympathetic nervous system.						
74.	Stimuli coming to the brain are sorted and channelled by the A. thalamus. B. cerebrum. C. cerebellum. D. hypothalamus.						
75.	A person with a damaged medulla oblongata would have difficulty A. reading. B. breathing. C. tasting food. D. problem solving.						
76.	A person recovering from a head injury finds that she has difficulty maintaining balance. Which part of the brain has been injured? A. Thalamus. B. Cerebellum. C. Hypothalamus. D. Medulla oblongata.						
77.	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.						
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79.	Two functions of the medulla oblongata are to control A. body position and vision. B. heart beat and breathing rate. C. sensory areas and motor areas. D. involuntary muscle contractions and metabolic rate.						
80.	The part of the brain responsible for muscle coordination is the A. cerebellum. B. hypothalamus. C. corpus callosum. D. medulla oblongata.						
81.	What part of the brain is malfunctioning if nerve impulses are unable to travel from the right to the left hemisphere? A. Cerebrum. B. Cerebellum. C. Hypothalamus. D. Corpus callosum.						
82.	Damage to the occipital lobe could affect A. sight. B. hearing. C. heartbeat. D. water balance.						
83.	The occipital lobe of the cerebral cortex has association areas for A. taste. B. smell. C. vision. D. hearing						
84.	The cerebral lobe of the brain that contains areas responsible for the sensations of touch, temperature, pressure and pain, and for the understanding of speech is the A. frontal. B. parietal. C. occipital. D. temporal.						
85.	The part of the brain that would help you to concentrate on this examination even when other sensory stimuli are present is the A. thalamus. B. cerebellum. C. hypothalamus. D. medulla oblongata.						
86.	The part of the brain responsible for consciousness is the A. cerebrum. B. cerebellum. C. hypothalamus. D. pituitary gland.						

87.	Which of the following lobes of the cerebrum is responsible for vision? A. Frontal. B. Parietal. C. Occipital. D. Temporal.
88.	Which of the following is <b>not</b> a part of the cerebrum? A. Cortex. B. Cerebellum. C. Occipital lobe. D. Temporal lobe.
89.	In which lobe of the brain are sensory areas for hearing and smelling located? A. Frontal. B. Parietal. C. Occipital. D. Temporal.
90.	How does the hypothalamus increase the metabolic rate of cells in the body? A. It produces and releases thyroxin. B. It secretes a specific releasing hormone. C. It increases autonomic nerve stimulation. D. It causes cells to become permeable to blood glucose.
91.	A function of enzymes is to A. emulsify fats. B. carry information to nerves. C. catalyze chemical reactions. D. maintain constant blood pH.
92.	The source gland for adrenalin is the A. pancreas. B. adrenal cortex. C. adrenal medulla. D. posterior pituitary.
93.	Which of the following is a function of the hormone thyroxin? A. It decreases blood volume. B. It increases metabolic rate. C. It slows the release of insulin. D. It increases blood sodium levels.
94.	A nerve impulse passes through the following structures when the heart contracts. The correct sequence is A. AV node, Purkinje fibres, SA node. B. SA node, Purkinje fibres, AV node. C. Purkinje fibres, SA node, AV node. D. SA node, AV node, Purkinje fibres.
95.	Which of the following interacts with the pituitary gland as the neuroendocrine control centre? A. Thalamus. B. Cerebellum. C. Hypothalamus. D. Medulla oblongata.
96.	A chemical produced by the puffer fish prevents the opening of sodium gates in neurons but has no effect on chemical synapses. In which location on a sensory neuron would impulse transmission initially be stopped when this chemical is injected into the foot? A. Cell body. B. Myelin sheath. C. Node of Ranvier. D. Terminal knob of an axon.
97.	Which of the following would be a homeostatic response to a blood pressure reading of 80/50? A. Dilation of the arteries. B. Sympathetic stimulation. C. Inhibited ACTH secretion. D. Decreased ADH secretion.
98.	A hormone released by the posterior pituitary gland is A. gastrin. B. glucagon. C. parathyroid hormone (PTH). D. antidiuretic hormone (ADH).
99.	Which of the following is <b>not</b> a hydrolytic enzyme? A. Lipase. B. Trypsin. C. Amylase. D. Carbonic anhydrase.
100.	Which of the following are found <b>only</b> in the central nervous system? A. Interneurons. B. Motor neurons. C. Sensory neurons. D. Sensory receptors.
101.	The speed of nerve impulse conduction is increased by the presence of A. axons. B. myelin. C. dendrites. D. cell bodies.
102.	Which of the following are found <b>only</b> in the central nervous system? A. Interneurons. B. Motor neurons. C. Sensory neurons. D. Sensory receptors.
103.	A person recovering from a head injury finds that she has difficulty maintaining balance. Which part of the brain has been injured? A. Thalamus. B. Cerebellum. C. Hypothalamus. D. Medulla oblongata.
104.	Peristalsis may refer to the A. capillary beds of the digestive tract. B. closing of the glottis upon swallowing. C. activity of the sympathetic nervous system. D. rhythmic contraction of the wall of the esophagus.
105.	The somatic nervous system includes nerves that serve the A. heart. B. intestines. C. salivary glands. D. skeletal muscles.
106.	Which of the following would occur if an impulse from the SA node were blocked before it reaches the AV node? A. The heart would not contract. B. Only the atria would contract. C. Only the ventricles would contract. D. Blood would travel only to the pulmonary system.
107.	The posterior pituitary gland releases A. adrenalin. B. aldosterone. C. thyroxin. D. antidiuretic hormone (ADH).
108.	Due to a head injury, a patient's ability to breathe has been impaired. Where has the damage likely occurred? A. The cerebrum. B. The cerebellum. C. The hypothalamus. D. The medulla oblongata.
109.	In an experiment, a hormone is injected into the heart muscle of a rat. The response is an increased heart rate. Which of the following glands was the source of the hormone? A. Pancreas. B. Thymus. C. Adrenal medulla. D. Anterior pituitary.
110.	Damage to the medulla oblongata may result in A. hearing loss. B. impaired growth. C. breathing difficulty. D. loss of coordination.