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| --- | --- | --- |
| Test part | Possible mark | Your mark |
| Multiple choice | 20 |  |
| Short answer | 21 |  |
| Extended answer | 7 |  |
| Total | 48 |  |

HUMAN BIOLOGICAL SCIENCE. YEAR 12. 2011.

Immunity, Brain and Nerve Topic Test.

***Multiple choice answer sheet.***

**Use a ball point or ink pen to mark an X** on the letter that represents the best answer from the choice of answers . Marks are not deducted for wrong answers.

|  |  |  |  |
| --- | --- | --- | --- |
| Question | Answer | Question | Answer |
| 1 | A B C D | 11 | A B C D |
| 2 | A B C D | 12 | A B C D |
| 3 | A B C D | 13 | A B C D |
| 4 | A B C D | 14 | A B C D |
| 5 | A B C D | 15 | A B C D |
| 6 | A B C D | 16 | A B C D |
| 7 | A B C D | 17 | A B C D |
| 8 | A B C D | 18 | A B C D |
| 9 | A B C D | 19 | A B C D |
| 10 | A B C D | 20 | A B C D |

1. The cerebellum is concerned with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. conditioning
3. memory
4. coordination and precision of fine movements
5. intelligence
6. At the synapses, the impulses are always passed from the…..
7. axon to the dendrites
8. dendrites to the axon
9. either way is possible
10. cyton to the dendrites
11. The medulla oblongata is best described as:
12. A structure in the cerebrum that contains the cardiac, respiratory, vomiting and vasomotor centers and deals with autonomic functions, such as breathing, heart rate and blood pressure.
13. A structure in the brain stem that contains the cardiac, respiratory, vomiting and vasomotor centers and deals with autonomic functions, such as breathing, heart rate and blood pressure.
14. A structure in the brain stem that controls water balance and hormone production.
15. A structure in the cerebellum that contains neurons concerned with memory.
16. In myelinated neurons:
17. The action and resting potential is seen all along the axon.
18. The action potential only is seen along the axon.
19. The action and resting potential is only seen at the nodes of Ranvier.
20. There is never a resting potential.
21. Which of the following statements is correct?
22. In the spinal cord and brain the grey matter is to the outside.
23. In the spinal cord the grey matter is to the outside. In the brain the white matter is to the outside.
24. In the spinal cord the white matter is to the outside. In the brain the grey matter is to the inside.
25. There is no grey matter in the spine.
26. Which of the following statements about Schwann cells is correct?
27. Schwann cells help form the myelin sheath.
28. Schwann cells are not found in the white matter.
29. Schwann cells are only found in the grey matter.
30. Schwann cells are only found on sensory neurons.
31. The most obvious difference between the human brain and the brain of a fish would be in the size of the:

A. hypothalamus.

b. thalamus.

c. cerebellum.

d. cerebral cortex.

1. An elderly acquaintance of yours has suffered from partial blindness since she had a stroke. Apparently the stroke damaged her

a. occipital lobe.

b. parietal lobe.

c. temporal lobes.

d. reticular formation

1. The cerebral cortex is composed of two sides or \_\_\_\_\_\_\_\_\_\_.

a. Pons

b. positrons

c. connector neurons

d. hemispheres

1. Which of the following gives the correct pathway for impulses in a reflex arc?

a. sensory neuron, connecter neuron, brain.

b. sensory neuron, connecter neuron, motor neuron.

c. motor neuron, connecter neuron, sensory neuron.

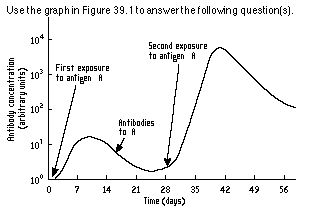
d. brain, motor neuron, muscle.

1. The antibodies that a baby receives from its mother are an example of:
2. Natural passive immunity.
3. Artificial passive immunity.
4. Natural active immunity.
5. Artificial active immunity.
6. Vaccination using attenuated antigens is an example of:
7. Natural passive immunity.
8. Artificial passive immunity.
9. Natural active immunity.
10. Artificial active immunity.

13 Which of the following is not found in the CSF?

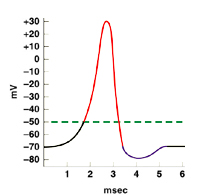
1. Urea
2. White blood cells
3. Glucose
4. Acetycholine

Use the diagram below to answer questions 14 and 15.



1. Why does the antibody concentration between 21 and 28 days **not** drop back to zero?
2. Memory T cells carry antibodies able to respond to antigen A.
3. Killer T cells carry antibodies able to respond to antigen A.
4. Memory B cells carry antibodies able to respond to antigen A.
5. Plasma B cells carry antibodies able to respond to antigen A.
6. The response to antigen A at 28 days would result in:
7. A rapid response and little or no symptoms of infection.
8. A reduction in T cells, but an increase in B cells.
9. Similar symptoms as seen in days 0 to 14.
10. A new set of antigens being produced.

Use the following graph to answer questions 16 and 17.



1. During which time period are sodium gates open?
2. 1 to 2 msec.
3. 2 to 3 msec.
4. 3 to 4 msec.
5. 4 to 5 msec.
6. What is the resting potential for this neuron?
7. -70mV
8. -50mV
9. +30mV
10. 15mV
11. Which of the following gives the correct pathway for a nerve impulse that is bringing about skeletal muscle contractions?
12. Cerebrum, Pons and muscle.
13. Cerebrum, cerebellum and muscle.
14. Cerebellum, cerebrum and muscle.
15. Pons, cerebrum and muscle.
16. When coordinating muscle movement:
17. Sensory neurons collect information from propriorecptors in the joints and sensory neurons in the middle ear.
18. Motor neurons collect information from propriorecptors in the joints and sensory neurons in the middle ear.
19. Sensory neurons in the eyes and ears only bring information on body position to the Pons.
20. Sensory neurons in the eyes and ears only, bring information on body position to the Cerebrum.
21. A reflex arc response contributes to homeostasis by:
22. Keeping body temperature constant.
23. Keeping the ion balance constant in the body fluids.
24. Keeping the middle ear sensory neurons constant.
25. Preventing serious injury.

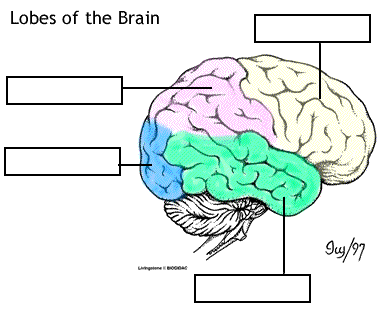
Short answer questions

1. Write definitions for the words in the table below.

|  |  |
| --- | --- |
| Word | Meaning |
| Antigen |  |
| Antibody |  |

(2 marks)

1. Label the diagram below and use it to answer the questions that follow.



(2 marks)

II. The largest structure shown above is the \_\_\_\_\_\_\_\_ of the human brain. The convolutions on the surface of this structure are known as the \_\_\_\_\_\_\_ and the \_\_\_\_\_\_\_\_\_. These convolutions increase the \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_ of this part of the brain. The outer layer of this structure is known as the \_\_\_\_\_\_\_\_\_\_ matter or \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_. It has this colour many of the neurons that make it up are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

(3.5 marks)

III. Based on the previous diagram complete the table below.

|  |  |
| --- | --- |
| Functional area | Lobe of brain that the area is located in |
| Sensory |  |
| Movement |  |
| Personality |  |
| Vision |  |
| Smell |  |

(2.5 marks)

3. List and briefly explain three different ways that antibodies can act to nuetralise antigens. Diagrams may be used where appropriate.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(6marks)

1. In point form list the events that happen that allow transmission of nerve impulses from the end plate of one neuron to the dendrite of another. This can be answered using a suitable diagram.

(5 marks)

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|  |

EXTENDED ANSWER QUESTION

1. Describe how the cell mediated response to antigens occurs. Use diagrams where appropriate.

(7 marks)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_