9 SCIENCE 2014

BIOLOGY TEST ONE

Name: _____ **Teacher:** _____ **Mark:** /54

TEACHER COPY **Percentage:** %

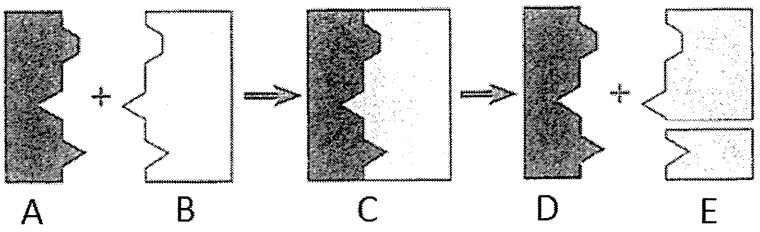
SECTION A: **MULTIPLE CHOICE** **(15 marks)**

Please answer on the multiple choice answer grid below.

1. A B C D
2. A B C D
3. A B C D
4. A B C D
5. A B C D
6. A B C D
7. A B C D
8. A B C D
9. A B C D
10. A B C D
11. A B C D
12. A B C D
13. A B C D
14. A B C D
15. A B C D

ANSWER KEY

Answer questions 1 to 4 based on the diagram below.



1. 'A' refers to:

   (a) Enzyme molecule.
   (b) Reactant molecule.
   (c) Catalyst.
   (d) Reacting molecule.

2. 'E' refers to:

   (a) Catalyst broken into smaller parts.
   (b) Enzyme broken into smaller parts.
   (c) Reactant molecule broken into smaller parts.
   (d) Reacting molecule broken into smaller parts.

3. The diagram is known as a:

   (a) Catalyst model.
   (b) Lock and key model.
   (c) Lock and enzyme molecule.
   (d) Key lock model.

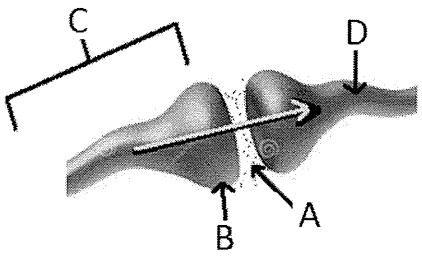
4. Why are mitochondria so important?

   (a) They produce the enzymes required for digestion.
   (b) They produce proteins.
   (c) They are where cellular respiration occurs.
   (d) They are the pacemaker of the heart.

5. The left hemisphere of the brain controls:

   (a) spoken language, number skills, the right hand.
   (b) the left hand, creativity, reasoning.
   (c) the right hand, reasoning, spoken language.
   (d) the left hand, creativity, number skills.

Answer questions 6 and 7 based on the diagram below.



6. The diagram shows:

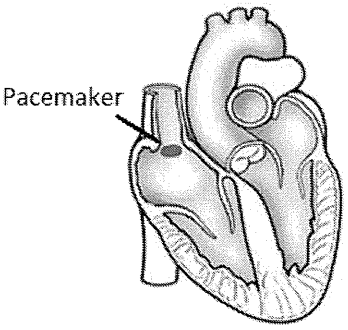
(a) a synapse between two neurones.
(b) a synapsis between two nerves.
(c) a knee joint.
(d) a synopsis between two neurones.

7. Label 'A' in the diagram refers to:

(a) a vacuum
(b) the neurotransmitter.
(c) the axon.
(d) the neuron.

8. The function of the SA node (pacemaker) is to:

(a) Open the valves in the heart at the correct time.
(b) Release hormones to contract the atria.
(c) Initiate the heartbeat cycle.
(d) None of the above.



9. Choose the correct definition for 'target cells.'

(a) The cells that hormones act on.
(b) The cells that secrete hormones.
(c) Endocrine glands.
(d) The cells that enzymes act on.

10. Which of the following matches the sense with its correct receptor?

Letter to choose from	Sense	Receptor
(a)	Sight	Thermoreceptor
(b)	Smell	Photoreceptor
(c)	Taste	Chemoreceptor
(d)	Hearing	Olphactoreceptor

11. Select the incorrect statement below.

(a) Nerve impulses can only travel in one direction.
(b) Nerve impulses are electrical messages carried by a nerve cell.
(c) The nervous system is made up of hundreds of nerve cells.
(d) Electrical messages are also known as nerve impulses.

12. Select the incorrect statement below.

(a) The liver breaks down haemoglobin.
(b) The liver breaks down hormones.
(c) The liver breaks down toxic substances.
(d) The liver breaks down glucose.

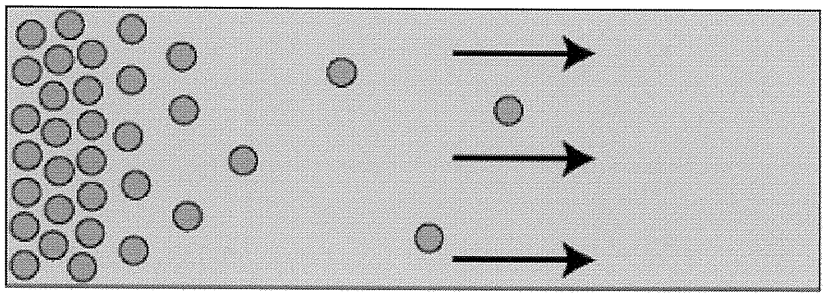
13. Choose the correct definition for 'ribosomes'.

(a) Organelles that make proteins.
(b) The chemicals between neurones
(c) Organelles that are involved in cellular respiration.
(d) They break down insulin and other hormones.

14. During digestion carbohydrates are broken down into:

(a) glycerol.
(b) amino acids.
(c) glucose.
(d) fatty acids.

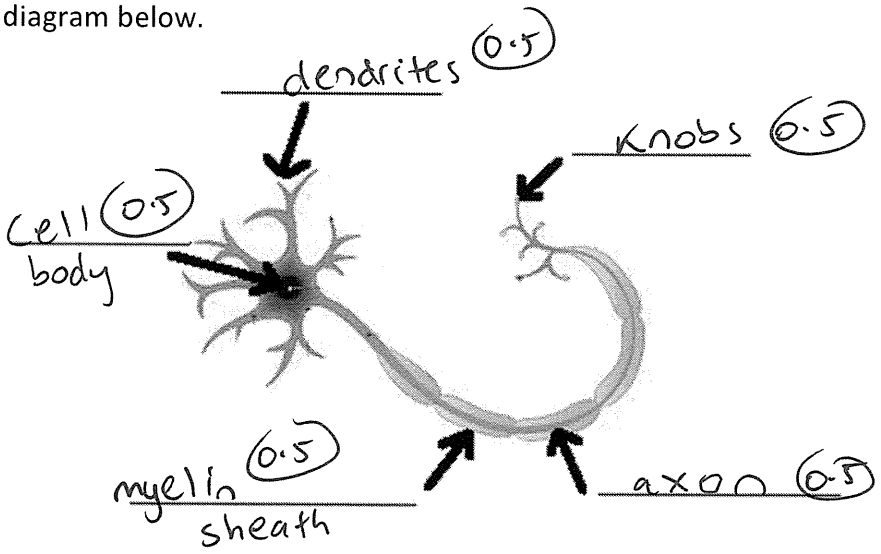
15. Which of the following has the best description of the process showing in the diagram below?



(a) Enzymes cause the spreading out of particles.
(b) Diffusion is the movement of particles from high concentration to low concentration.
(c) Diffusion is the movement of particles from low concentration to high concentration.
(d) Small molecules are more easily absorbed by the digestive system.

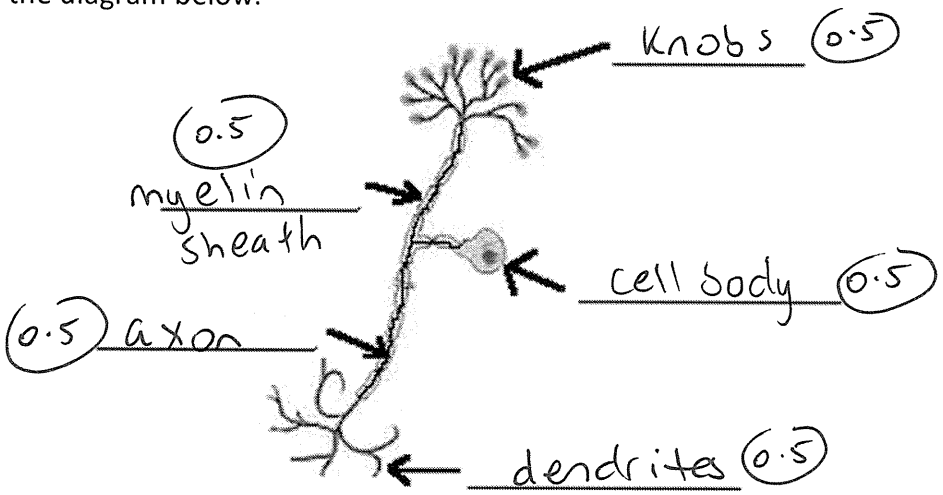
SECTION B: **SHORT ANSWER** **(39 marks)**

1a. Label the diagram below. (3 marks)



b. The diagram above is of a: Motor neurone (0.5)

2a. Label the diagram below. (3 marks)

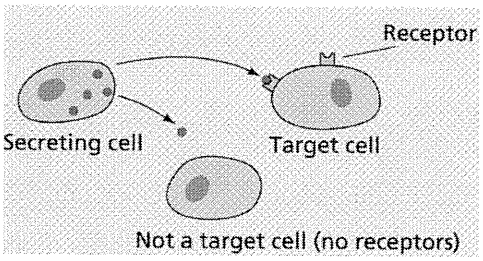


b. The diagram above is of a: sensory neurone (0.5)

3. Explain the main structural difference between motor neurones and sensory neurones. (2 marks)

Cell body in motor neurone is surrounded by dendrites (1), the cell body in sensory neurone branches off the axon (1).

4. Explain the process occurring in the diagram below (mention the substances that the secreting cell secretes). (4 marks)



- Secreting cell secretes hormones (1)
- Hormones travel in blood. (0.5)
- A cell with (0.5) no receptors does not receive hormone. (0.5)
- A cell with receptor that hormone fits into (0.5) gets hormone (target cell) (0.5)
- Hormone only active in cell that specifically fits to. (0.5)

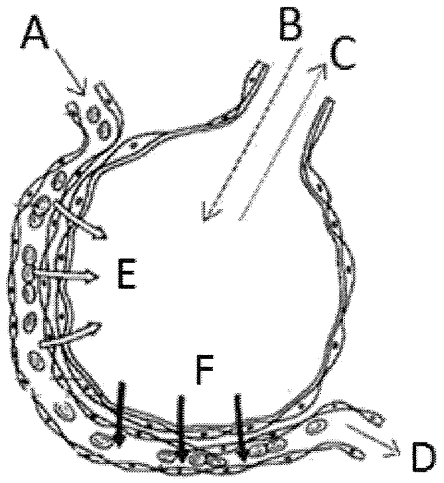
5a. State the name of the process shown in the diagram below. (1 mark)

Diffusion

b. Fill in the table below placing the letters next to their correct label. (3 marks)

Letter	Label
B	Air in
D	Oxygenated blood
E	Movement of carbon dioxide
A	Deoxygenated blood
C	Air out
F	Movement of oxygen

(0.5) (0.5) (0.5) (0.5) (0.5) (0.5)



c. Fill in the missing words below. (2 marks)

Oxygen moves from the alveolus (0.5) where there is a greater concentration of oxygen to the capillary (0.5) where there is a lower concentration of oxygen.

Carbon dioxide moves from the capillary (0.5) where there is a greater concentration of carbon dioxide to the alveolus (0.5) where there is a lower concentration of carbon dioxide.

6. Fill in the blanks on the diagram below, please use the full names not initials or abbreviations (6 marks)

The Nervous System

Central nervous system (0.5)

Made up of the brain and spinal cord.

Peripheral nervous System (0.5)

Carries messages from the CNS to the rest of the body

Somatic nervous system (0.5)

Part of the nervous system that:

- coordinates body movements (1)
- Receives info from sensory organs

Eg: touch, smell , taste, hearing, sight.

Autonomic (0.5) nervous system

Controls unconscious activities in your body

Sympathetic nervous system (0.5)

Speeds up the functions of the body

One function this system has is to: (1)

- Divert blood flow away from digestive tract & the skin.
- Increases blood flow to the heart.
- Stops peristalsis
- relaxes muscles in eye, dilates pupils
- Maintains blood flow to lungs & muscles.
- opens bronchioles, increases amount of air going into lungs
- increases heart rate.

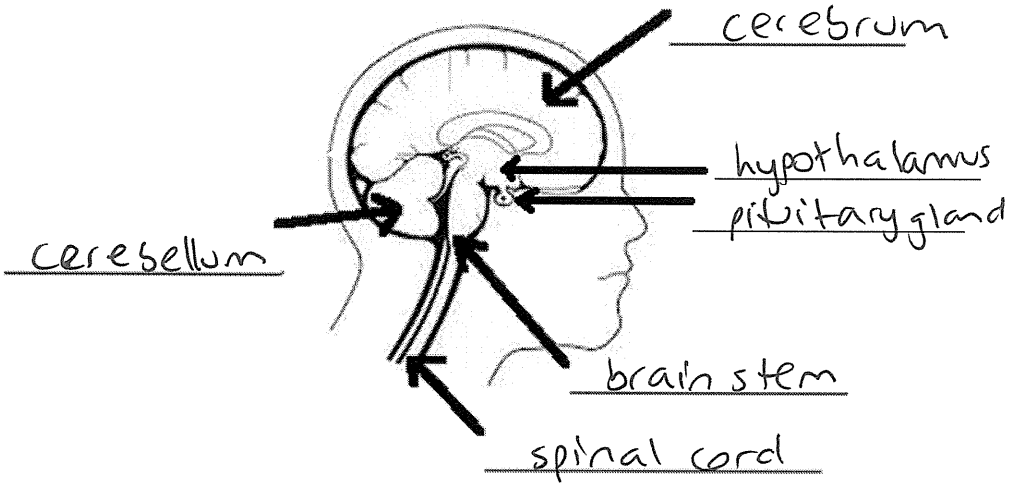
Parasympathetic nervous system (0.5)

Slows down the functions of the body

One function this system has is to: (1)

- increases blood flow to digestive tract.
- Stimulates salivary glands
- Increases rate of peristalsis
- Reduces diameter of bronchioles
- Controls heartbeat
- contracts muscles of eye & reduces pupil diameter.

7. Label the diagram below. (3 marks)



8. Fill in the missing words below. (2 marks)

The endocrine system is coordinated by the pituitary gland which responds to information from the hypothalamus. If conditions change in the body, the hypothalamus responds. It secretes hormones that act on the pituitary gland.

9. Describe the function of the myelin sheath. (2 marks)

(1) Acts as insulation around a (1) neurone.

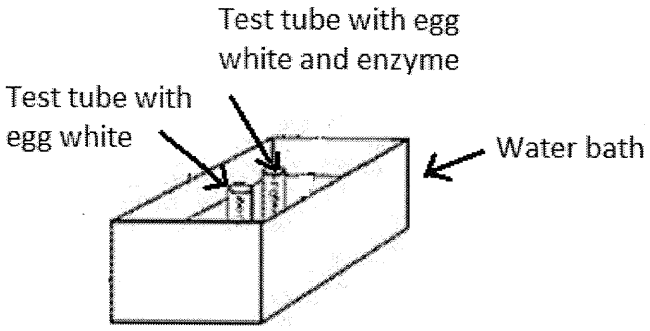
10. Write a definition for 'effectors'. (2 marks)

(1) muscles or glands that put (1) messages into effect.

11. Two students were testing the effectiveness of an enzyme on breaking down proteins into amino acids. When protein is broken down into amino acids it turns clear.

The students had two test tubes in a water bath (container with water). Both of the test tubes had some egg white (protein) in the bottom. One of the test tubes also had an enzyme called protease added to it. The test tubes were placed in a water bath and left there for 20 minutes.

They repeated the experiment three times. Their set up is shown below:



After 20 minutes they obtained the following results:

Trial	With enzyme	Without enzyme
1	Turned Clear	Remained white
2	Turned Clear	Remained white
3	Turned Clear	Remained white

a. State the independent variable in this experiment. (1 mark)

Enzyme or no enzyme

b. State the dependent variable in this experiment. (1 mark)

whether substance turned clear or not

c. List two variables that should be controlled. (2 marks)

1 mark each

- Amount of egg white.
- Environment
- 20 minute time for trial

d. Explain what they could conclude from the results they obtained. (2 marks)

- The enzyme caused (1) the egg white to be broken down. (1)