This is a Class 1 exam

Lebanon Evangelical School for Boys and Girls

Lebanon Evangelical School

for Boys and Girls Loueizeh - Baabda

Stage Exam 06

20JUN, 21JUN2022

Do NOT write in this box. Your MARK will be placed here.

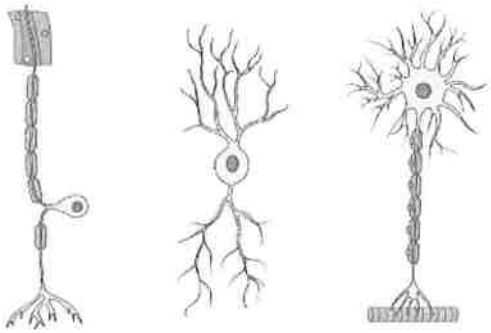
Subject :	Biology
Class :	9A
Teacher :	Miss Rahmeh Hilal
Duration :	1 hour

Your name :		*Time taken to complete exam*
Your Class :		
Exam Room :		
How many sheets, including cover sheet :		

- Do not open this paper until the teacher in charge instructs you to do so.
- The most important thing to remember in taking an exam is NEVER PANIC.
- If you are caught cheating in this exam, you will be awarded zero for ALL exams that are taken on this day.

Q1.

(a) The diagram shows three types of neurone.



A B C

(i) Give the names of these neurones.

(3)

A .....

B .....

C .....

(ii) Explain the role of these neurones in the withdrawal reflex of a finger from a hot object.

(3)

.....

.....

.....

.....

.....

.....

.....

.....

.....

(Total for question = 6 marks)

Q2.

(a) The kidney carries out two functions in the human body.

State these functions.

(2)

1 .....

2 .....

(b) The data shows the concentration of substances in different liquids from different locations in the kidney.

Substance	Concentration of each substance / g per 100 cm^3		
	plasma	glomerular filtrate	urine
protein	8.0	0	0
glucose	0.10	0.90	0
urea	0.030	0.030	0.200

(i) Calculate the range of urea concentrations across the three different locations in the kidney.

(1)

range = ...

(ii) Explain the differences in the concentration of protein and glucose.
Use information from the table to support your answer.

(4)

.....

.....

.....

.....

.....

.....

.....

(c) The composition of urine changes depending on the conditions within the body.

Explain how the composition of urine changes if a person is in a very warm environment.

(3)

.....

.....

.....

.....

.....

.....

.....

(Total for question = 10 marks)

Q3.

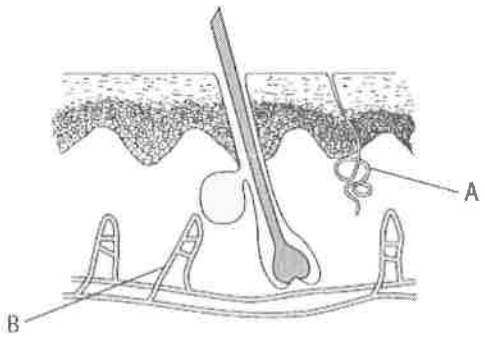
Humans can control their internal environment.

(a) State the term used to describe the control of an organism's internal environment.

(1)

.....

(b) Humans use their skin to regulate their body temperature. The diagram shows a section through the skin with two structures labelled A and B.



Changes take place in the skin when a person moves from a warm environment to a cold environment.

(i) Explain the changes that take place in structure A as a person enters a cold environment.

(2)

.....

.....

.....

.....

.....

(ii) Explain the changes that take place in structure B as the person enters a cold environment.

(3)

.....

.....

.....

.....

.....

.....

.....

(Total for question = 6 marks)

Q4.

(a) Animals produce hormones to communicate between cells.

(i) Which hormone causes an increased blood flow to the muscles during exercise?

(1)

- ☐ **A** adrenaline
- ☐ **B** insulin
- ☐ **C** progesterone
- ☐ **D** testosterone

(ii) Which of these is a correct statement about hormones?

(1)

- ☐ **A** they always produce short-term changes
- ☐ **B** they are carried by neurones
- ☐ **C** they are transported in the plasma
- ☐ **D** they always produce a rapid response

(b) Plants produce plant growth substances such as auxin.

Suggest why some biologists do not consider auxin to be a hormone.

(2)

.....

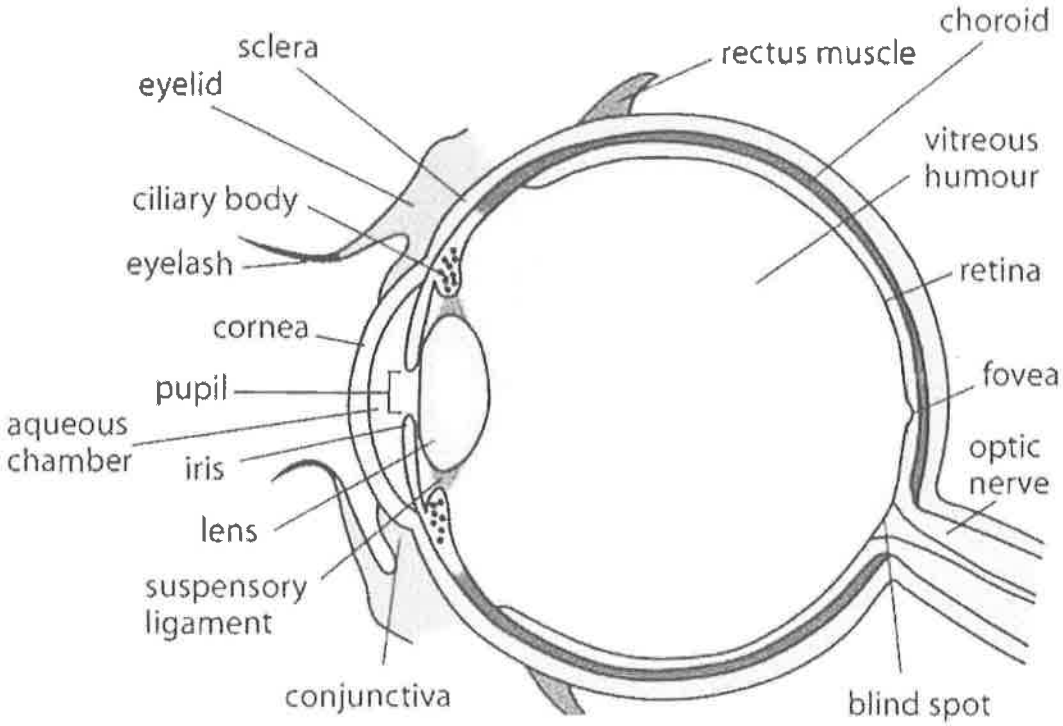
.....

.....

.....

(Total for question = 4 marks)

Q5.



Based on the labeled image of the eye, select the correct answer for each of the below:

1. The _____ is the tough outer layer of the eye. It is tough and opaque. It gives the eye its shape and provides a place for eye muscles to attach.
    a. Sclera
    b. Cornea
    c. Pupil

2. The _____ controls the amount of light that enters the eye through the _____.
    a. Pupil; iris
    b. Iris; pupil
    c. Iris; retina
    d. Pupil; retina

3. Light rays are focused by the lens and pass onto the _____.
    a. Fovea
    b. Retina
    c. Optic nerve

4. The _____ is a pigmented layer that prevents the reflection of light inside the eye.
    a. Retina
    b. Fovea
    c. Choroid

5. The retina contains 2 types of light receptors: the rods and cones. The ones responsible for color vision are the _____.
    a. Rods
    b. Cones

6. The blind spot in the retina is called as such because it is _____ sensitive to light.
    a. More
    b. Less
    c. Not

7. Ciliary muscles relax. Tension increases on ligaments, pulling them tighter. The lens is pulled flatter and thinner. These events focus light on _____ objects.
    a. Distant
    b. Close

8. In the presence of dim light, the pupils _____.
    a. Dilate
    b. Constrict

9. When the pupils constrict, the _____ muscles contract and the _____ muscles relax.
    a. Radial; circular
    b. Circular; radial

10. The _____ collects messages from the light receptors in the retina and send them to the optic lobe (vision center) of the brain.
    a. Fovea
    b. Rods and cones
    c. Optic nerve
    d. Retina cells

(Total for question = 10 marks)

Q6.

Blood sugar levels need to be regulated and kept within a normal range.

1. These levels are controlled by hormones secreted by the _____.
    a. Liver
    b. Pancreas
    c. Adrenal glands
    d. Pituitary gland

2. The _____ is responsible for breaking down the glycogen it has stored into glucose or storing more glucose as glycogen.
    a. Liver
    b. Pancreas
    c. Adrenal glands
    d. Pituitary gland

3. State one effect carried out by insulin.

.....

.....

4. State one effect carried out by glucagon.

.....

.....

(Total for question = 4 marks)

Q1.

Question Number	Answer	Mark
(a)(i)	• A sensory / afferent (1) • B relay / association (1) • C motor / efferent (1)	3 grad

Question Number	Answer		Mark
(a)(ii)	An explanation that makes reference to the following points • neurone A / sensory / afferent (+ impulse) (from receptor) to CNS / spinal cord / relay neurone / neurone B (1) • (synapses with) neurone B / relay / association / (+ impulse) (from receptor neurone A) to motor / efferent / neurone C • neurone C / motor / efferent (+ impulse) to effector / muscle	must have impulse once to score 3 marks allow signal message for 2 max	3 exp

Q2.

Question number	Answer	Additional guidance	Mark
(a)	One mark for each of the following : • osmoregulation (1) • excretion (1)	any order	2

Question number	Answer	Mark
(b)(i)	0.17/(0.200 – 0.030)	1

Question number	Answer	Mark
(b)(ii)	An explanation that makes reference to four of the following points: • protein stays in plasma/not in filtrate or in urine (1) • protein molecules too large to pass out of glomerulus/into Bowman's capsule (1) • glucose in plasma and filtrate/none in urine (1) • small enough to pass out of glomerulus/into Bowman's capsule (1) • all glucose reabsorbed by active transport in proximal convoluted tubule (1)	4

Question number	Answer	Mark
(c)	An explanation that makes reference to three of the following points: • less volume (1) • more concentrated (1) • as more water lost in sweat (1) • more ADH released (1)	3

(Total for question = 10 marks)

Q3.

Question Number	Answer	Mark
(a)	• homeostasis (1)	1

Question Number	Answer	Mark
(c)(i)	An explanation that makes reference to the following points. • less sweat released /eq (1) • less (sweat) evaporates / less cooling / less heat loss /eq (1)	2

Question Number	Answer	additional guidance	Mark
(c)(ii)	An explanation that makes reference to 3 of the following points. • B / blood vessels (to surface) constrict / vasoconstriction / eq (1) • less blood flows (to skin surface) / eq (1) • less heat loss / heat conserved /eq (1) • less convection / radiation (1)	allow converse ignore capillaries constrict more blood away from surface / eq	3

Q4.

Question Number	Answer	Mark
(a)(ii)	The only correct answer is A adrenaline *B is not correct as it is not insulin* *C is not correct as it is not progesterone* *D is not correct as it is not testosterone*	1

Question Number	Answer	Mark
(a)(iii)	The only correct answer is C they are transported in the plasma *A is not correct as they do not always produce short term changes* *B is not correct as they are not carried by neurones* *D is not correct as they do not always produce a rapid response*	1

Question Number	Answer	Mark
(b)	An answer that makes reference to two of the following points: • auxin transported in xylem / phloem / auxin not transported in blood / plasma (1) • auxin produced in tips / eq auxin not from endocrine / glands / organs (1) • auxin has different effect on roots and shoots / eq (1)	2 **Allow converse for Mp1 and Mp2**

Q5.

1. a. sclera
2. b. iris, pupil
3. b. retina
4. c. choroid
5. b. cones
6. c. not
7. a. distant
8. a. dilate
9. b. circular; radial
10. c. optic nerve

Q6.

1. b. pancreas
2. a. liver
3. Stimulates more uptake of glucose and its storage as glycogen OR stimulates more glucose uptake by muscle cells
4. Stimulates the breakdown of glycogen into glucose by the liver