S.4 BIOLOGY ASSESSMENT TEST

TIME: 100 MINUTES TOPIC: EXCRETION & HOMEOSTASIS

Instructions: Attempt all questions.

SECTION A

1. The main value of sweating in man is that during the process
A. Excess water is removed from the body
B. Latent heat of vaporization of water helps to cool the body
C. Excess mineral salts are removed from the body
D. The body gets rid of excess nitrogenous wastes

2. Possession of a long loop of Henle is a characteristic of;
A. Desert animals B. Amphibians C. Fresh water animals D. Mammals

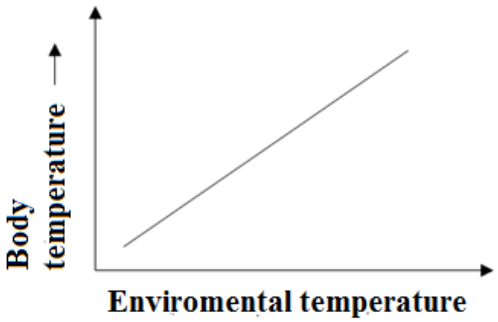
3. Which of the following organs is responsible for removing excess glucose from blood?
A. Spleen B. Liver C. Kidney D. Gall bladder

4. Reptiles are well adapted to living on land due to presence of
A. Dry epidermal scales and egg membranes
B. Lungs and egg membranes
C. Shelled eggs and lungs
D. Dry epidermal scales and gular crest

5. In the body temperature regulation, vasodilatation
A. Allows more blood to enter the skin capillary network
B. Allows more urine to be secreted into the bladder
C. Allows less sweat to be secreted by sweat glands
D. Decreases heat loss by radiation

6. The waste product urea is formed from
A. Cellulose B. Protein C. Glucose D. Fat

7. Figure 2 shows changes in the body temperature with environmental temperature in an animal.



Which one of the following could be the animal represented?
A. Bird
B. Dog
C. Human
D. Frog

8. In which part of the kidney nephron does reabsorption of glucose occur?
A. Proximal convoluted tubule.
B. Distal convoluted tubule.
C. Descending loop of Henle.
D. Ascending loop of Henle.

9. Which **one** of the following stimulates the re-absorption of the water in the kidney?
A. Adrenaline B. Antidiuretic hormone. C. Thyroxine D. Insulin

10. What is the function of contractile vacuole in the amoeba?
A. Storage of solid particles
B. Storage of unwanted gaseous compounds
C. Control of water content in the body
D. Digestion of food

11. The group of organs performing excretory functions is

A. Kidneys, lungs and skin.
C. Skin, kidneys and pancreas
B. Liver, kidneys and pancreas
D. Lungs, spleen and gall bladder.

12. Excretory products of plants include

A. Oxygen and starch
C. Oxygen and carbon dioxide
B. Oxygen and urea
D. Urea and carbon dioxide

13. Which one of the following responses is likely to occur in the human body when environmental temperature increases?

A. Vasodilation
C. Contraction of the erector pili muscle
B. Shivering
D. Increased metabolism

14. In which part of the nephron does ultrafiltration take place?

A. Renal tubule B. Collecting tubule C. Glomerulus D. Renal vein

15. In which part of the nephron does reabsorption of sugars take place?

A. Distal convoluted tubule
C. Proximal convoluted tubule
B. Loop of Henle
D. Collecting duct

16. Which one of the following is the source, target and effect of insulin on the human body?

	Source	**Target**	**Effects**
A	Liver	Liver	Decrease amount of glucose in blood
B	Pancreas	Pancreas	Increase amount of glucose in blood
C	Liver	Pancreas	Decrease amount of glucose in blood
D	Pancreas	Liver	Decrease amount of glucose in blood

17. Which of the following organs are used for excretion in insects and mammals respectively?

A. Flame cells and Kidney
C. Malphigian tubule and Kidney
B. Nephridia and Kidney
D. Trachioles and Kidneys

18. Which of the following glomerular components increases in concentration along the rest of parts of the nephron?

A. Water B. Protein C. Glucose D. Urea

19. Which one of the following is the role of efferent vessel of the nephron?

A. Drains the glomerulus
C. Filters the blood
B. Supplies the glomerulus
D. Purifies the blood

20. The following are physiological processes that occur in the body of a mammal.

(i) elimination of urea.
(iii). regulation of water in the body
(ii) *regulation of salts in the body*
(iv). deamination of excess amino acids.

Which of them are carried out by the kidney?

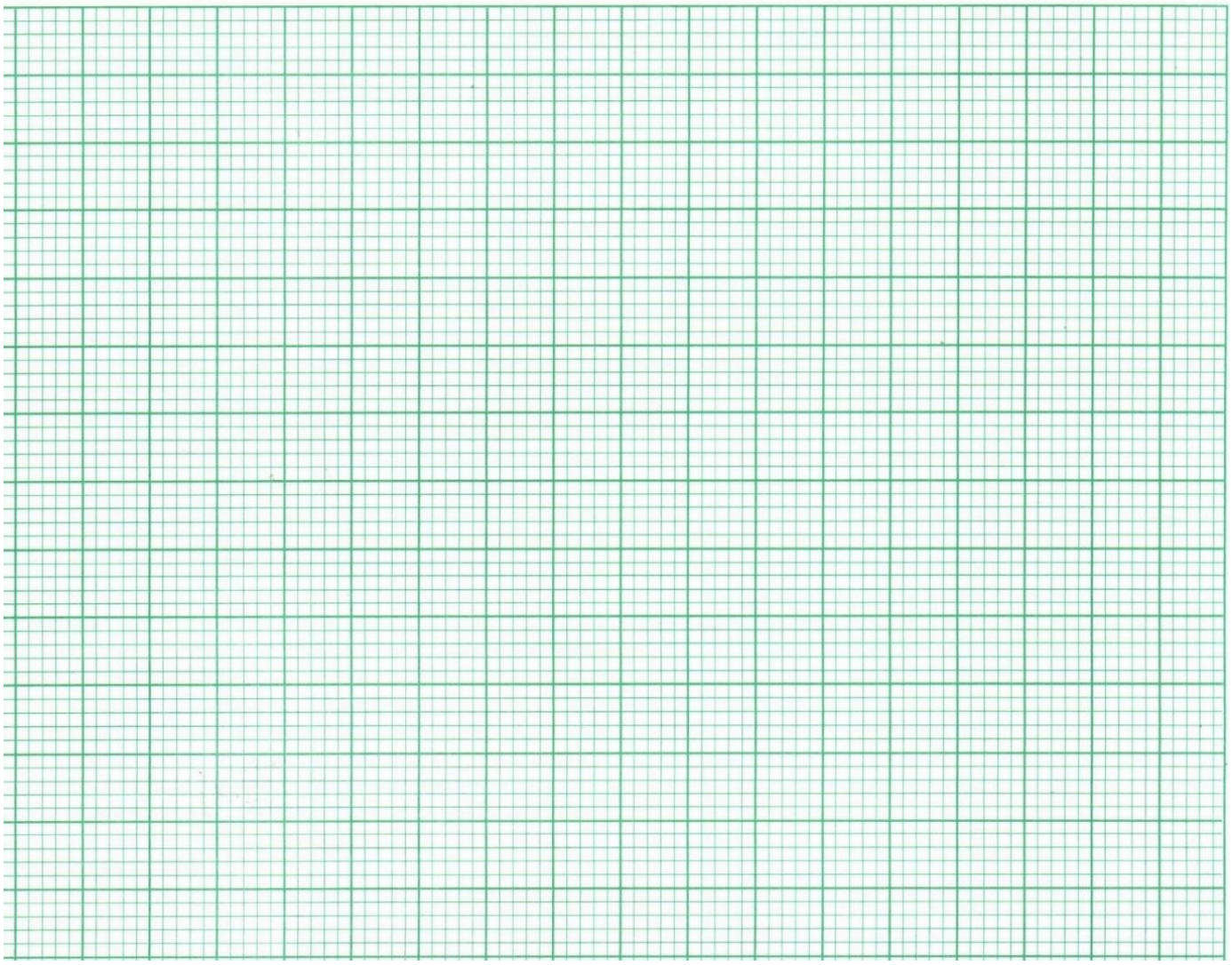
A. (i), (ii) and (iv)
C. (i), (ii) and (iii)
B. (ii), (iii) and (iv)
D. (ii) and (iii) only.

SECTION B

21. The table below shows the variation of body temperature with environmental temperature of two animals S and T. study it carefully and answer the questions that follow.

Environmental temperature (^0C)	***Body temperature (^0C)***	
	Animal S	***Animal T***
10	8	37
20	17	37
30	29	37
40	36	37

(a) On the same axes, draw a graph to show the variation of body temperature with environmental temperature for the two animals ***(07 marks)***



(b) Describe the relationship between body temperature and environmental temperature in the two animals?

(02 marks)

Animal S

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……

Animal T

……

……

(c) (i) Give the terms used to describe the nature of each of the two animals with respect to temperature regulation ***(02 marks)***

Animal S……

Animal T……

(ii). Explain the two terms in (c) above ***(04 marks)***

Animal S

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Animal T

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(d) (i). State any three advantages of animal T over animal S. ***(03 marks)***

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(ii). State any four physiological responses of animal S to overheating. ***(02 marks)***

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22. Figure 4 below shows a mammalian urinary system.

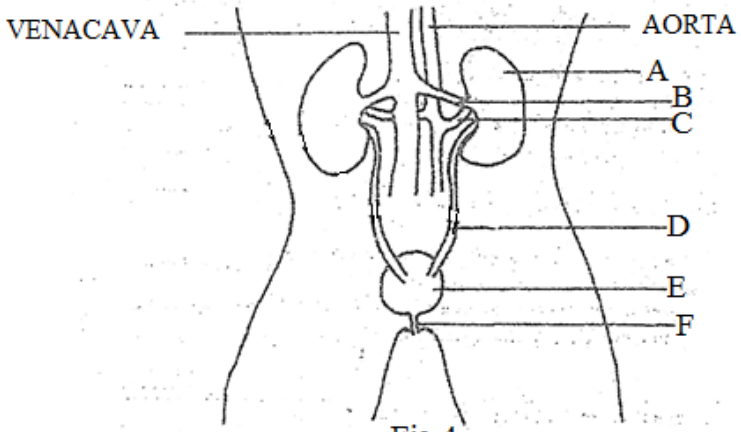

Fig 4

(a) Name the parts labeled A – F ***(03 marks)***

A…….. D……..…….

B…… ….. E…….

C…….…….. F……..…….

(b) Briefly explain why the concentration of urea in B is less than that in C. ***(03 marks)***

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……..…… ……

(c) What is the function of E? ***(01 mark)***

……..……

(d) A sample of urine was found to contain sugar.

(i) Suggest the types of sugar likely to be contained in the urine sample. ***(01 mark)***

…… ……. …..

(ii) What hormone is likely to be deficient in the person from whom the urine sample was taken? ***(01 mark)***

…… ……. …..

(iii) Name the disease that the person is likely to be suffering from. ***(01 mark)***

……..

(c) Another individual was found to be passing out lot of urine but without sugar and complaining of thirst most of the time.

(i) Suggest a hormone that is deficient in this individual. ***(01 mark)***

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(ii). Name the organ which produces the hormone referred to in (e) (i) above. ***(01 mark)***

…… ……. …..

23. ***(a)*** What is the excretory organ for nitrogenous wastes? ***(02 marks)***

(i) in insects……..…… ***(ii)*** in an amoeba?…… …..

(b) Where is the organ located in the insect body? ***(01 mark)***

…… ……. …..

(c) (i) What nitrogenous compound is excreted by the organ in (b) above? ***(03 marks)***

…… ……. …..

(ii). Give a reason for the form of the excretory product you have mentioned in (c)(ii) above.

……..

(iii). Name any other excretory products in insects. ***(01mark)***

……..

(d) What other function does the excretory organ in the amoeba perform? ***(01 mark)***

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SECTION C

24. ***(a)*** Distinguish between Excretion and Osmoregulation. ***(02 marks)***

(b) Give reasons why plants do not require special excretory organs as Man. ***(04 marks)***

(c) Describe how water balance is maintained in Man. ***(09 marks)***

END!!!

"Don´t ask what the world needs. Ask what makes you come alive, and go do it."