

Name.....Stream.....

553/1
BIOLOGY
(Theory)
29th/07/2019
2¼ HOURS

**UGANDA MARTYRS SS NAMUGONGO
END OF TERM II EXAMINATIONS 2019
S.3 BIOLOGY PAPER 1
TIME: 2 ¼ HOURS**

INSTRUCTIONS

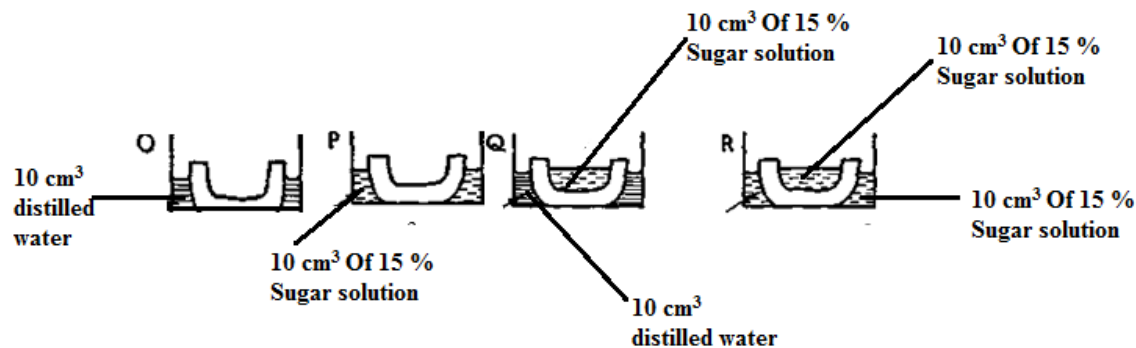
The paper consists of 3 sections **A**, **B** and **C**.
For section A, **TICK** the most correct alternative in the grid below. Section B, use the spaces provided for your answers. Attempt only **one** questions from section C.

Answer grid for section A. (*tick the correct alternative*).

	A	B	C	D		A	B	C	D
1.					16.				
2.					17.				
3.					18.				
4.					19.				
5.					20.				
6.					21.				
7.					22.				
8.					23.				
9.					24.				
10.					25.				
11.					26.				
12.					27.				
13.					28.				
14.					29.				
15.					30.				

SECTION: A (30 marks)

- 1.** Which one of the following hormones is essential for sugar balance in the body of man?
- A. thyroxin B. insulin
- C. vasopressin D. parathohormone
- 2.** One major characteristic used to identify class mammalia is
- A. Closed Circulatory System B. being endothermic
- C. Possession of mammary glands D. An endoskeleton
- 3.** In the figure below, O, P, Q, and R are sets of experiments to study osmosis using freshly cut potato tubers. At the start, each Petri dish contains 10 cm³ of a liquid.



In which of the petri dishes will the level of the liquid be lowest?

- A. O B. P C. Q D. R
4. A soil with low humus content and coarse particles is most likely to have
A. High capillary B. High drainage
C. Low aeration D. High water retention
5. At high PH the enzyme pepsin may be
A. In activated B. Denatured C. Inhibited D. Destroyed
6. Which of the following is a pair of raw materials used in the process of photosynthesis?
A. Glucose and Oxygen B. Glucose and Water
C. Carbon dioxide and Oxygen D. Carbon dioxide and Water
7. A maize grain is an example of
- A. An achene B. a drupe C. a caryopsis D. a seed
8. Dichogamy is an attempt by plants to adapt for
A. Self-pollination B. Cross pollination
C. Wind pollination D. Insect pollination

- 9.** A fruit with several sutures along which it splits when ripe is called a
 A. Berry B. Legume C. Capsule D. Drupe
- 10.** During breathing in man, when diaphragm muscles contract then
 A. Thoracic volume increase B. Thoracic pressure increase
 C. Exhalation occurs D. The diaphragm attains a dome shape
- 11.** Which of the following is not associated with anaerobic respiration in muscles?
 A. lactic acid B. energy C. ethanol D. carbon dioxide
- 12.** Reptiles are adapted to living in dry areas because of
 A. possession of lungs B. possession of limbs for movement
 C. internal fertilization D. possession of dry epidermal scales
- 13.** The following results were obtained in an experiment on a soil sample.
 Weight of crucible = P g
 Weight of crucible + soil = Q g
 Weight of crucible + soil dried to no change = R g
 Weight of the crucible + soil heated to red hot = S g
 Which of the following expressions shows the percentage of humus?
- A. $\frac{R-P}{S-P} \times 100\%$ C. $\frac{R-P}{Q-P} \times 100\%$
 B. $\frac{R-S}{Q-P} \times 100\%$ D. $\frac{R-S}{S-P} \times 100\%$
- 14.** Transpiration is important in plants except for;
 A. absorption of water and dissolved salts B. regulation of plant temperature
 C. transportation of water to the leaves D. elimination of excess water in plants
- 15.** The target organ for antidiuretic hormone ADH is the
 A. Liver B. Kidney C. Pituitary D. Ovary
- 16.** External digestion of food is a characteristic of
 A. Amoeba B. Paramecium C. Houseflies D. Mucor
- 17.** Both urine formation and tissue fluid formation involve
 A. Ultra filtration B. Selective re-absorption C. Active transport D. Osmosis
- 18.** Diabetes mellitus is as a result of malfunction of the
 A. Pituitary B. Pancreas C. Liver D. Kidney
- 19.** Panting in dogs is aimed at
 A. Cooling the body B. Paying the oxygen debt

- C. Getting rid of excess carbon dioxide D. Obtaining maximum oxygen
- 20.** Which of the following compounds combines with fatty acids to form fats?
- A. Acids B. Fructose C. Glycerol D. Glucose
- 21.** After manufacturing food, plants transport it in a
- A. Xylem B. Cortex C. Pith D. Phloem
- 22.** Which one of the following substances does not contain Nitrogen?
- A. Urea B. Amylase C. Glycerol D. Amino acids
- 23.** Phagocytosis is a process whereby
- A. White blood cells ingest and destroy bacteria
- B. White blood cells cause the bacteria to stick together
- C. White blood cells dissolve the outer coats of invading bacteria and destroy them
- D. Antibodies fight antigens
- 24.** A person of blood group O is said to be a universal donor because he
- A. Lacks antigens in his red blood cells
- B. Lack antibodies in his serum
- C. Has both the antigens and antibodies in his blood
- D. Has only antigen A in his red blood cells.
- 25.** Fig 1 shows how the body temperature of animals vary with environmental temperatures.

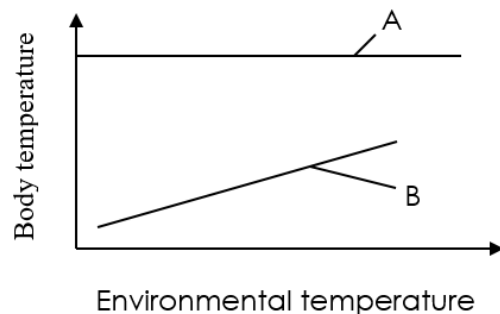


Fig. 1

- Which of the following explains well the figure?
- A. Body temperature of A is dependent on environmental temperature.
- B. Body temperature of B is dependent on environmental temperature
- C. A has a higher body temperature than that of B.
- D. B loses more heat than A.

26. Strips W, X, Y and Z of same size and shape were cut from a raw pawpaw, whose sap had a sugar concentration of 28%. The strips were then placed in sugar solution of different concentrations as shown in the table.

Strip	Concentration of solution (%)
W	15
X	25
Y	28.5
Z	48

Which strip would be longest after 4 hours?

- A. W
 - B. X
 - C. Y
 - D. Z
27. Which of the following word equations summarizes the process of fermentation?
- A. Glucose $\rightarrow$ Ethanol + carbon dioxide + water.
 - B. Glucose $\rightarrow$ Lactic acid + energy + water.
 - C. Glucose $\rightarrow$ Ethanol + carbon dioxide + energy.
 - D. Glucose $\rightarrow$ Lactic acid + water + water + carbon dioxide.
28. Which one of the following plant organs has a scattered arrangement of vascular bundles?
- A. Root of a monocotyledonous plant.
 - B. Stem of a monocotyledonous plant.
 - C. Stem of a dicotyledonous plant.
 - D. Root of a dicotyledonous plant.
29. Figure 2 below shows the changes in the lactic acid concentration in the blood during and after exercise.

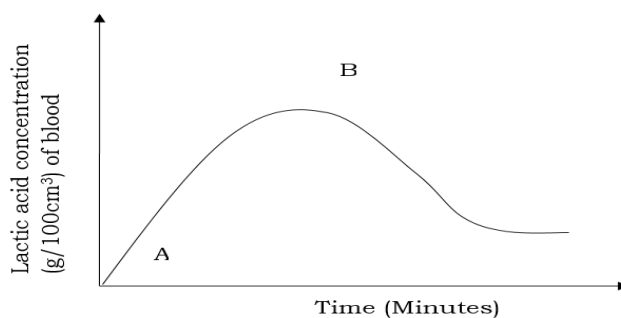


Fig.2

The correct explanation for what is occurring between points A and B is that

- A. Breathing rate has increased.
- B. Blood flow to muscles has increased.
- C. Oxygen supply to the muscles is less than the demand.
- D. Oxygen supply to the muscles in excess.

30. Holozoic nutrition involves 5 sequential stages. Which of the following sequences is correct?

- A: Digestion – ingestion – assimilation – absorption
- B: Ingestion – digestion – absorption – assimilation
- C: Ingestion – digestion - assimilation – absorption
- D: Assimilation – ingestion – digestion – absorption

SECTION B (40 MARKS)

31. The table below shows the variation of body temperature with environmental temperature of two animals **P** and **Q**.

Environmental temperature (°C)		10	20	30	40
Body temperature(°C)	Animal P	8	17	29	36
	Animal Q	37	37	37	37

(a) Plot 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 P:

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Animal Q:

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

Animal P:

Animal Q:

(ii) Explain the two terms given in (c) above. **(02 marks)**

Animal P:

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Animal Q:

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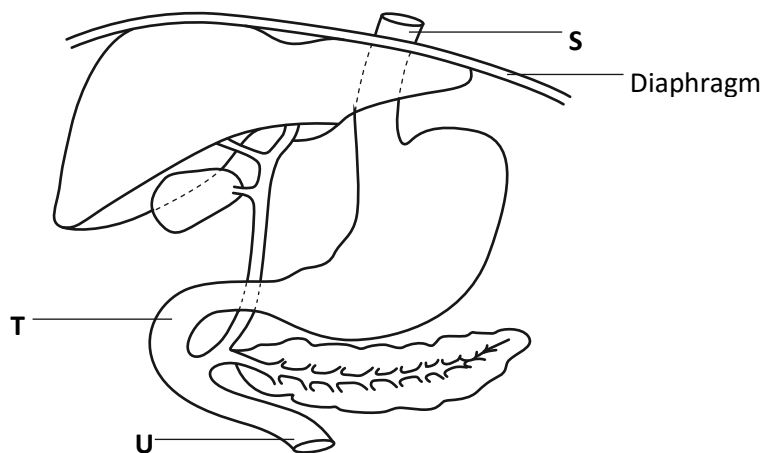
(d) State any three advantages of **animal Q** over **animal P**. **(03 marks)**

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(e) State any **four physiological** responses of **animal Q** to overheating. **(04 marks)**

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32. The diagram shows a region of the alimentary canal and the associated organs.



(a) (i) Name part labelled S. (01 mark)

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(ii) Name and describe the process which moves food through part S. (01½ marks)

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(b) Briefly describe the process of digestion that takes place in part labelled T, by filling in the table below. (04 ½ marks)

Enzyme	Food substance acted upon	Product(s)

(c). Describe how part labelled U is adapted for absorption of food. (03 marks)

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33. (a) Describe how the liver regulates amount of sugar or glucose in blood.

(06 marks)

Response to levels above normal	Response to levels below normal

(b) State **four** functions of the liver, other than regulation of blood sugar levels.

(04 marks)

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SECTION C

34. (a) i) Define seed/ fruit dispersal.

(01 mark)

(b) State the importance of fruit/ seed dispersal to plants.

(05 marks)

(c) Explain the mechanism of dispersal of fruits by:

i) Animals

(05 marks)

ii) Wind

(04 marks)

END