**TERM TWO EXAMINATIONS YEAR 2020**

**FORM THREE BIOLOGY PAPER ONE**

**NAME……………………………………………………………..………………………ADM………….CLASS…………….**

**1.** State the importance of the following processes to living organisms.

a) Locomotion. (1 mark)

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**2.** Distinguish between taxon and taxonomy. (2 marks)

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**3.** a) State the functions of the following organelles.

i) Centriole (1 mark)

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b) A form one student trying to estimate the size of onion cells observed the following on the microscope field of a view.

i) Define the term resolving power. (1 mark)

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ii) If the student counted 20 cells across the field of view, calculate the size of one cell in

micrometers. (2 marks)

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**4.** A potato cylinder measuring 100 mm was placed in a concentrated salt solution for 30 minutes.

Describe its texture and appearance after 30 minutes. (3 marks)

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**5.** Explain why a cross-circuit athlete pants heavily after sprint race. (3 marks)

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**6.** a) Name a respiratory substrate usually available for energy release during starvation. (1 mark)

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**7.** a) Give the difference between pyramid of biomass and pyramid of numbers. (2 marks)

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b) Why is pyramid of biomass a better method of representing ecological relationships in habitats.

(1 mark)

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**8.**a) How does each of the following structures in the mammalian skin adapted to perform its function?

i) Cornified layer.(1 mark)…………………………………………………………………………….

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**9.**Give a reason for each of the following:

a) Wind pollinated flowers produce large quantities of pollen grains. (1 mark)

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**10.** The set-up below shows an experiment to investigate photosynthesis.

**Gas collected**

**water containing**

**sodium hydrogen**

**carbonate**

**Aquatic plants**

**At start of experiement After the Experiment**

a) What gas was collected in the test-tube. (1 mark)

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**11.**State **THREE** ways in which schistosoma species is adapted to parasitic mode of life. (3 marks)

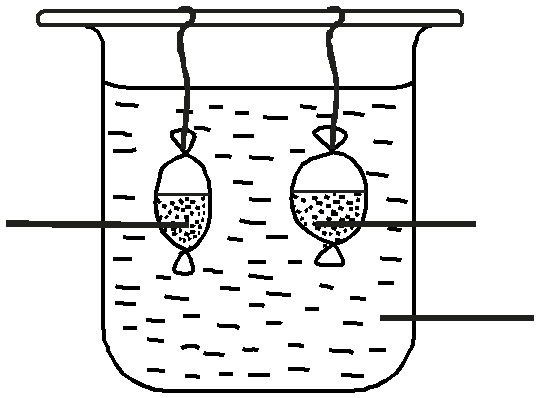
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**12.**In an experiment, two equal volumes of solutions L and M were placed into visking tubings. The two viskig tubings were suspended as shown below.

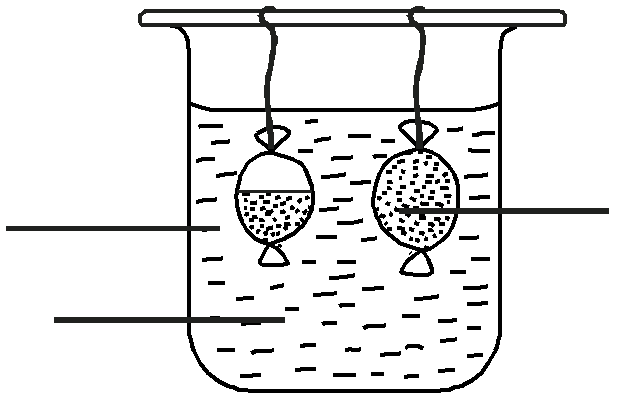
**Solution**



**M**

**Solution L Solution M Solution K**

**start of experiement End of the Experiment**



Explain the results that were obtained in the visking tubings at the end of the experiment. (4 marks)

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**13.**Give a reason why primary productivity in an aquatic ecosystem decrease with depth. (1 mark)

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14a).Name one components of blood that are not present in the glomerular filtrate.(1mks)………………………………………………………………………………………

b)Explain why insulin tablets cannot be administered orally (1mk)

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**15.** Explain what happens when diaphragm muscles contract during breathing in mammals. (3 marks)

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**16.** Give **two** reasons why potato tubers become sweeter after boiling. (2 marks)

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**17.**Give **two** adaptive features the make a predator efficient in capturing prey. (2 marks)

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**18.**List **three** ways in which the proximal convoluted tubule is adapted to its functions. (3 marks)

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**19.**Briefly explain the meaning of the following terms as used in ecology. (3 marks)

i) Carrying capacity

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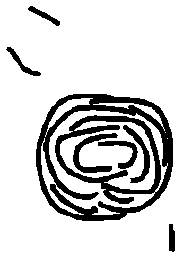
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**20.**The diagram below represents a bacterium cell.



a) Name the kingdom to which the bacterium belong. (1 mark)

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**21** a) Name one element found in proteins but not not in carbohydrates. (1 mark)

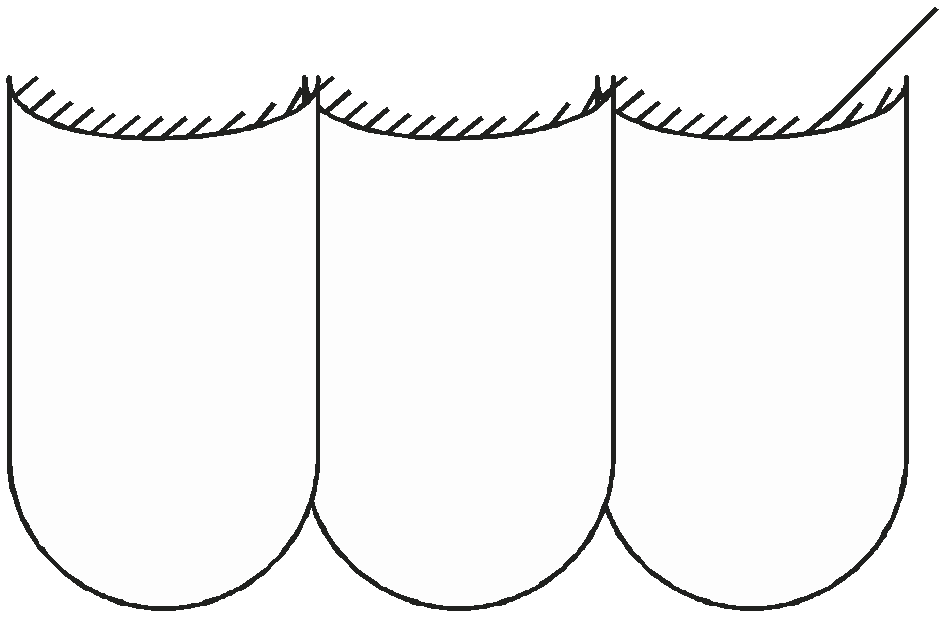
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.................................................................................................................................................................... b) State TWO functional roles of proteins in the body. (2 marks)

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**22.**The diagram below shows a type of epithelial tissue.



**Hair-like processes**

a) State the possible functions of the hair-like processes on the tissue. (1 mark)

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**23** a) In which phase of photosynthesis are carbohydrates formed? (1 mark)

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**24.** A certain organ K was surgically removed from a rat. It was later found that there was a drastic increase in glucose level in the blood. When substance Q was injected into the animal the glucose in the blood went back to normal. Identify

i) Organ K (1 mark)

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**25.**The table represents certain aspects of the circulatory system in certain animals. Fill in the missing spaces. (3 marks)

|  |  |  |  |
| --- | --- | --- | --- |
| Heart | No. of atrium | No. of ventricles | Type of circulation |
| A | 2 | 2 |  |
| B | 2 | 1 |  |
| C | 1 | 1 |  |

**26.**What is the importance of a pooter to an ecologist? (1 mark)

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**27.**The red blood cells lack mitochondria.

a) How is this advantages to red blood cells? (1 mark)

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**28.**Two glucose molecules combine to form the disaccharide sucrose. The moleculer formula of glucose is C6H12O6 while a single sucrose molecule has the molecular formula C12H22O11. Account for the observation. (3 marks)

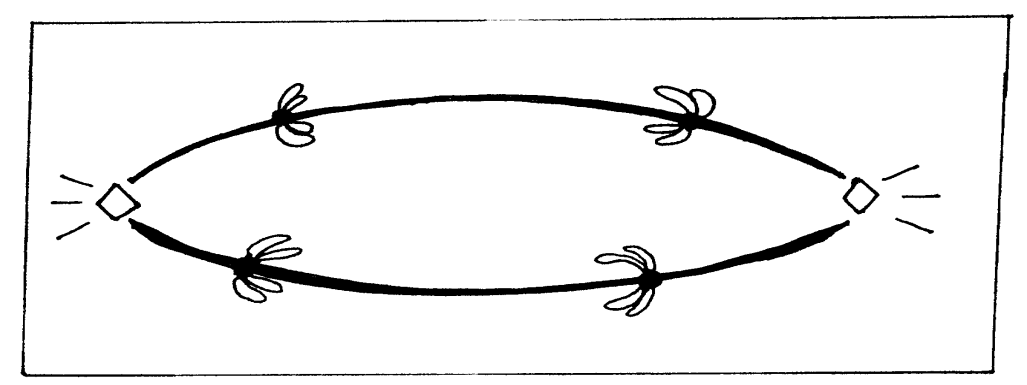
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29. Below is a stage in cell division



(a) Identify the stage (1mk)

(b)Give reasons for your answer (2mks)