**BUNAMFAN CLUSTER EXAMINATION - 2022**

**Kenya Certificate of Secondary Education**

**231/1 – BIOLOGY – Paper 1**

**June 2022 - 2 hours**

**Name**………………………………………**Adm No**……

**Class**…………… **Date**……………………………

**INSTRUCTIONS TO CANDIDATES:**

Write your **Name, Class** and **Adm NO** in the spaces provided above.

Answer **all** the questions in this paper in the spaces provided.

**FOR EXAMINER’S USE ONLY:**

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| --- | --- | --- |
| **Question** | **Maximum****Score** | **Candidate’s****Score** |
| **1 - 27** | **80** |  |

**attempt all the questions**

1. Some form one students wanted to collect the following animals for study in the laboratory. **State** the suitable apparatus they should use.

 i) Housefly (1 mk)

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 ii) Scorpion (1 mk)

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 iii) Ants (1 mk)

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2. State **two** reasons why a snake is classified as a reptile. (2 mks)

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3. (a) **Explain** the role of oxygen in Active transport (1mk)

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 (b) Name **two** processes that depend on Active transport in animals (2mks)

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4. **Explain** how sunken stomata lower the rate of transpiration (2mks)

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5. **State** how xylem vessel is adapted to its function (3mks)

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6). a) **Define** the term immunity. (1mk)

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b) **Distinguish** between natural immunity and acquired immunity. (1mk)

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c) Identify **one** immunizable disease in Kenya. (1mk)

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7. (a) State **two** adaptations of the alveolus to its functions. (2mks)

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1. **Sugges**t a reason for asthmatic patient producing a wheezing sound during breathing? (1mk)

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 (c) **What** is the significance of the cartilage found in the human trachea being incomplete (c- shaped rings) (1mk)

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8. **Define** the following terms;

(i) Inter specific competition. (1mk)

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(ii) Carrying capacity (1mk)

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9. Suggest **two** methods that can be used to determine the type of food eaten by animals. (2mks)

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 10. (a) State **one** significance of genetics counseling (1mk)

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(b) Part of a strand of DNA molecules was found to have the following sequence

 A-T-C-G-G-G-A-T-C-T. What is the sequence?

 (i) Of the complementary strand? (1mk)

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(ii) On a m- RNA strand copied (1mk)

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11). The paddles of whales and the fins of fish adapt these organisms to aquatic habitats.

 a) **Name** the evolutionary process that may have given rise to these structures. (1mk)

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 b) What is the **name** given to such structures? (1mk)

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 c) Give **two** examples of vestigial organs in man. (2mks)

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12. Name the organelles that carry out the following functions (4mks)

1. Destroy old and worn-out organelles

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1. Formation of spindle fibres

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1. Osmoregulation

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1. Selective passage of substances into the cell

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13. (a) Why would you give an athlete glucose and not sucrose after a race? (1mk)

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(b) What happens to lactic acid after oxygen debt recovery? (2mks)

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14.**State** the difference between glycolysis and kreb”s cycle based on the following.

a) where they occur . ( 1 mk)

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b) Amount of energy produced. ( 1 mk)

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c) End product(s) (1 mk )

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15. a) Under which of the following magnifications would one see a larger part of the specimen X40 0r X500? Give a reason. (2 mks)

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16. The illustration below shows a transverse section through a mammalian kidney.



**Y**

**X**

(a) **Name** the structures labelled **X** and **Y**.

**X** ………………………………………………………………………………………………… ( 1mk)

**Y** ………………………………………………………………………………………………… (1mk)

(b) **State** the process in **Q** that leads to the formation of glomerular filtrate. (1mk)

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c) State one function of sebum (1 mk)

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17. State **three** differences in composition between umbilical artery and umbilical vein. (3 marks)

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| **Umbilical vein** | **Umbilical artery** |
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18. (a)**What** is meant by the term taxonomy? (1mk)

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 (b)**When** are two organisms considered to belong to the same species. (2mks)

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19).The diagram below shows part of alimentary canal of a mammal



(i)**Name** the parts labeled **A** and **C** (2mks)

**A** …………………………………………………………………………………………

**C** ………………………………………………………………………………………….

(ii)**State** the function of the part labeled **B.**  (1mk)

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20). The graph below shows the relationship between body temperatures and external temperatures in a human being and a snake. **Study** it and answer questions that follow.

 

 a**) What** happens to the temperature of each organism as the external temperature increases. (2 mks)

 Human –……………………………………………………………………………………………………

 Snake –.........................................................................................................................................................

**b)** Humans are described as homoithermic. **State** the advantage of this condition. (2mks)

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21.**a)**State **three** differences between light stage and dark stage of photosynthesis. (3 mks)

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| **Light stage** | **Dark stage** |
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 22. Define;

i) Pulmonary circulation (1mk)

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 ii) Systemic circulation (1mk)

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23 **.**The diagram below represents a plant cell that was subjected to a certain treatment.



 **At the start At the end of the experiment**

 **a) Account** for the shape of the cell at the end of the experiment. (2 mks)

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 **b)** **Draw** a diagram to illustrate how an animal cell would appear if subjected to the same treatment. (1mk)

24. a) **Give** a reason why each of the following steps are followed when preparing cross sections of a leaf for examination under a microscope.

i) Cutting thin sections. (2 mk)

 **………………………………………………………………………………………………………………..**

ii) Placing the sections in water. (1 mk)

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25. Explain **why** the population of people with sickle cell anaemia is higher in malaria prone areas. (3mks)

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26. The diagram below is of a stage in cell division



With a reason identify the stage.

 Stage (1 mk)

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 Reason (1 mk)

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1. The graph below represents growth pattern in a group organism



1. Name the type of growth curve (1 mk)

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1. Name the phylum that shows this type of pattern (1 mk)

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1. State one disadvantage of this type of pattern (1 mk)

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