**Name:……………………………………………..…......................Index No……....………… Signature……………….................. Date: ……………......**

**231/1 (THEORY)**

**BIOLOGY PAPER 1**

**TIME: 2 HOUR**

**PAVEMENT FORM 4 TRIAL 1 EXAMINATION 2021/2022**

**Kenya certificate of secondary education (K.C.S.E)**

* Write your **Name** and Index **Number** in the spaces provided above.
* Sign and write the date of examination in the spaces provided above.
* This paper consists of **TWO** sections: **A** and **B.**
* Answer **ALL** the questions in section **A** in the spaces provided after each question
* In Section **B**, answer question **6 (compulsory**) in the spaces provided and either question **7** or **8** in the spaces provided after question **8**.
* Answers must be written in English only.

**For Examiner’s Use Only**

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| --- | --- | --- |
| **Questions** | **Maximum score** | **Candidate’s score** |
| **1-24** | **80** |  |

*This paper consists of* ***8*** *printed pages. Candidates should check the question paper to ensure that all the pages are printed as indicated and no question is missing.*

1. (a) What is meant by the term binomial nomenclature? **(1mark)**

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 (b) Give **two** reasons why classification is important **(2 marks)**

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1. (a) What is the formula for calculating linear magnification of a specimen when using a hand lens**? (1mark)**

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(b) Give a reason why staining is necessary when preparing specimens for observation under the microscope **(1 mark)**

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1. Plant cells do not burst when immersed in distilled water. Explain **(2marks)**

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1. State **three** functions of Golgi apparatus**. (3 marks)**

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1. Distinguish between diffusion and osmosis. **(2 marks)**

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1. Describe what happens during the light stage of photosynthesis. **(3 marks)**

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1.  The diagram below represents a section though a human tooth

(a) (i) Name the type of tooth shown **(1 mark)**

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 (ii) Give a reason for your answer in (a) (i) above **(1 mark)**

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(b) State the functions of the structures found in part labeled J **(2 marks)**

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1. (a) Name a fat soluble vitamin manufactured by the human body. **(1 mark)**

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1. State **two** ways in which the root hairs are adapted to their function**. (2 marks)**

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1. a) State the functions of cristae in mitochondria**. (1mark)**

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b) The diagram below represents a cell organelle.

1. Name the part labeled Y. **(1mark)**

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(ii) State the functions of the part labeled X. **(1mark)**

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1. Name the part of the flower that develops into **(2marks)**

 a)Seed………………………………………………………………………………………………………

b)Fruit………………………………………………………………………………………………………

1. a) Name the fluid that is produced by sebaceous glands. **(1mark)**

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 b)What is the role of sweat in human skin?  **(2marks)**

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1. State **two** ways in which floating leaves of aquatic plants are adapted to gaseous exchange.

 **(2marks)**

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1. a) State **three** characteristics of Monera that are not found in other kingdoms.  **(3marks)**

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 b) Name the class to which a termite belongs  **(1mark)**

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1. a) Name **one** defect of circulatory system in humans. **(1mark)**

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 b) State **three** functions of blood other than transport.  **(3marks)**

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1. State the role of vitamin C in humans.  **(1mark)**

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1. a) State **two** processes which occur during anaphase of mitosis**. (2marks)**

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 b) What is significance of meiosis?  **(2marks)**

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1. State the role of insulin in human body.  **(1marks)**

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1.  An experiment was set up in the experiment as show below.

The set up was left for 30 minutes.

a) State the expected results. **(1mark)**

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b) Explain your answer in (a) above **(3marks)**

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1. a)In what form is energy stored in muscles **(1mark)**

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 b) State the economic importance of anaerobic respiration in plants**. (2marks)**

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1. a) Distinguish between epigeal and hypogeal germination. **(2marks)**

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 b) Why is oxygen necessary in the germination of seeds? **(2marks)**

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1. (a)What prevents blood in veins from flowing backwards? **(1 mark)**

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 (b) State **two** ways in which the red blood cells are adapted to their function **(2 marks)**

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1. What is the importance of the following in an ecosystem? **(2marks)**
2. Decomposers ……………………………………………………………………………………………………………………………………………………………………………………………………………………
3. Predation

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1. a) Distinguish between the terms homodont and heterodont. **(1mark)**

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 b) What is the function of carnassials teeth? **(1mark)**

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c) A certain animal has no incisors, no canines, 6 premolars and 6 Molars in its upper jaw. In the lower jaw there are 6 incisors, 2 canines, 6Premolars and six molars. Write its dental formula. **(2marks)**

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1. a) State **two** functions of bile juice in the digestion of food. **(2marks)**

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 b) How does substrate concentration affect the rate of enzyme action? **(1mark)**

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1. a) Explain how the following prevent self-pollination. **(2marks)**

(i) Protandry …………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………….

(ii) Self – sterility. ………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

 b) Give **three** advantages of cross pollination. **(3marks)**

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27. State **four** ways in which respiratory surfaces are suited to their function**. (4marks)**

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