**Name: ……………………………………………………... Index No. ………………………………**

**Candidate’s Signature…………………………… Date: ……………………………**

**231/3**

**BIOLOGY**

**Paper 3**

**(Practical)**

**Time: 1 ¾ Hours**

***Kenya Certificate of Secondary Education (K.C.S.E)***

**Biology**

**Paper 3**

**Practical**

**INSTRUCTIONS TO CANDIDATES:-**

* *Write your* ***name*** *and* ***index******number*** *in the spaces provided.*
* *Sign and write the* ***date*** *of examination in the spaces provided above.*
* *Answer* ***all*** *questions in the spaces provided in the question paper.*
* *Mathematical tables and silent electronic calculators may be used.*
* *Candidates may be penalized for recording irrelevant information and incorrect spelling especially of technical terms.*

**For Examiner’s Use Only**

|  |  |  |
| --- | --- | --- |
| **Question** | **Maximum scores** | **Candidates score** |
| 1 | 12 |  |
| 2 | 14 |  |
| 3 | 14 |  |
| **TOTAL** | **40** |  |

*This paper consists of 5 printed pages. Candidates should check to ascertain that all pages are printed as indicated and that no questions are missing and additional pages must not be inserted.*

1. (a) You are provided with 15ml.of substance **M**. Using the reagents provided, carry out food test and record the Food substance, Procedure, Observations, and Conclusion in the table below.  (8mks)

|  |  |  |  |
| --- | --- | --- | --- |
| **Food substance** | **Procedure** | **Observation** | **Conclusion** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

(b) State the role of using hydrochloric acid in the above test (1mk)

…………………………………………………………………………………………………………..

(c) (i)Name an organ in the human body which produces sodium hydrogen carbonate (1mk)

……………………………………………………………………………………………………

(ii) State **two** functions of sodium hydrogen carbonate produced in **C** (i) above. (2mks)

…………………………………………………………………………………………………………..

…………………………………………………………………………………………………………..

2. Using a hand lens carefully observe the plants provided.

(a) (i) State the divisions to which the plants labeled **P** and **Q** belong. (2mks)

**P**: …………………………………………………………………………………………….

**Q**: ……………………………………………………………………………………………

(ii) In each case give a reason for your answer in (a) (i) above. (2mks)

**P**: ……………………………………………………………………………………………

**Q**: ……………………………………………………………………………………………

(b) Make a large well labelled drawing of the plant labeled **P**. (5mks)

(c) Outline **two** differences between the Divisions of the plants labeled **P** and **Q**. (2mks)

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(d) Name the structures in the plants responsible for:

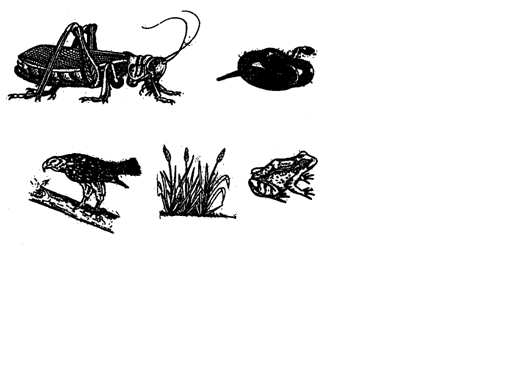
(i) Asexual reproduction (1mk)

…………………………………………………………………………………………………………..

(ii) Sexual reproduction (2mks)

………………………………………………………………………………………………………..……………………………………………………………………………………………………………..

3. Photographs **A**, **B**, **C**, **D**, and **E** below represent organisms that occupy a certain Ecosystem studied on a field visit.





**E**

**C**

**D**

**A**

**B**

**E**

1. Using the letters assigned to each organism, construct **two** food chains ending with a Tertiary consumer. (2mks)

…………………………………………………………………………………………………………..

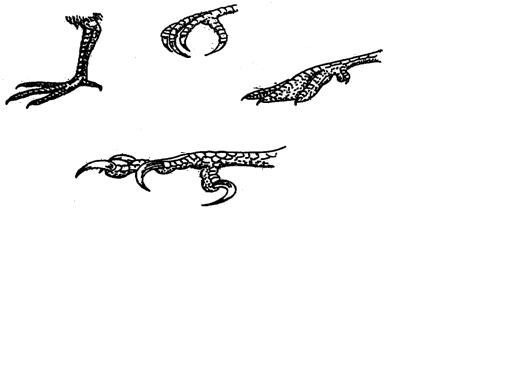
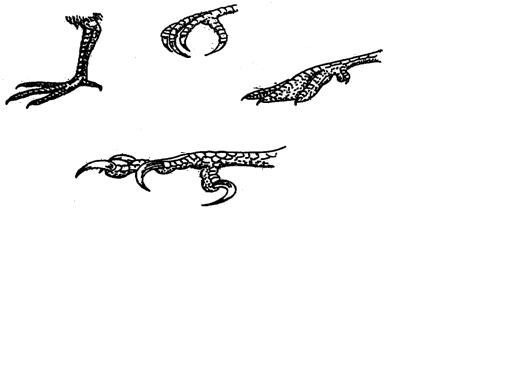
…………………………………………………………………………………………………………..

1. Suppose organism **B** migrated out of this ecosystem, suggest **two** possible effects on the ecosystem. (2mks)

…………………………………………………………………………………………………………………………………………………………………………………………………………………….

1. Using observable features only, state the adaptations of organism **A** to different ways of locomotion. (2mks)

……………………………………………………………………………………………………………………………………………………………………………………………………………………

 (b) Carefully observe feet from four different birds labeled **G**, **H**, **J**, and **K**

**J**

**K**

**G**

**H**

1. What evolutionary concept is shown by these feet? (1mk)

………………………………………………………………………………………………

1. State the functional adaptations shown by the feet labeled **G**, **J**, and **K** (3mks)

**G**: ……………………………………………………………………………………….

**J**: ………………………………………………………………………………………..

**K**: ……………………………………………………………………………………….

1. For the feet **H** and **G**, state the observable features that suit the birds to that environment. (2mks)

H: ……………………………………………………………………………………….

G: ……………………………………………………………………………………….