**NAME: …………………………………………. INDEX NO: ……………………………….**

**SCHOOL: ……………………………………… CANDIDATE’S SIGNATURE: …………**

 **DATE : ……………………………………**

**231/3**

**BIOLOGY**

**PAPER 3**

**(PRACTICAL)**

**TIME: 1 ¾ HOURS**

**INSTRUCTIONS TO CANDIDATES:**

1. *Write your* ***Name*** *and* ***Index Number*** *in the spaces provided.*
2. ***Sign*** *and write the* ***Date*** *of Examination in the spaces provided.*
3. *Answer all the questions in the spaces provided.*
4. *You are required to spend the first 15 minutes of the 1 ¾ hours allowed for this paper reading the whole paper carefully before commencing your work.*
5. *Additional pages must not be inserted.*
6. *This paper consists of 3 printed pages.*
7. *Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.*

**FOR EXAMINER’S USE ONLY**

|  |  |  |
| --- | --- | --- |
| **QUESTION** | **MAX. SCORE** | **CANDIDATE SCORE** |
| 1 | 16 |  |
| 2 | 12 |  |
| 3 | 12 |  |
| **TOTAL** | **40** |  |

**SECTION A (40 MARKS)**

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

1. You are provided with photographs of specimens labeled S1, S2, Q, X and Y. Examine them carefully and answer the questions that follow.



* + - 1. Using observable features in the photographs, complete the dichotomous key given below. (3mks)
1. (a) Leaves parallel veined …………………………………………… …. go to 2

(b) Leaves net veined……………………………………………………… go to 3

1. (a) Leaves green………………………………..…………………… Graminae

(b) Leaves purple …..…………………………………………….Commelinaceae

1. (a) Leaves simple …………………………..……………………… …. go to 4

(b) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_………………………………………………… go to 5

1. (a) Leaves margin smooth ………………………………………Nyctaginaceae

(b) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_……………………………………….……Malvaceae

1. (a) Trifoliate leaf ……………………..……………………………….Asteraceae

(b) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_………………………………….…………Cassia

* + - 1. Use the completed dichotomous key to identify the family to which each specimen belongs. (10mks)

SPECIMEN STEPS FOLLOWED IDENTITY

S1 …………………………………………….. ……………….

S2 …………………………………………….. ……………….

Q …………………………………………….. ……………….

X …………………………………………….. ……………….

Y …………………………………………….. ……………….

* + - 1. State how specimen S2 is adapted to its mode of pollination. (3mks)

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

1. Below is a photograph obtained from the pelvic region of a human being and showing some bones of the vertebral column. Examine it carefully and answer the questions that follow.
	* + 1. Identify the bones labeled 1, 2 and 3. (3mks)

1:…………………………………………………………………………………………….

2:…………………………………………………………………………………………….

3:…………………………………………………………………………………………….

* + - 1. (i) Name the type of joint formed at the proximal end of bone 3 as it articulates with the adjacent bone. (1mk)

………………………………………………………………………………………………

(ii) Give an observable feature on bone 3 for your answer in (b) (i) above. (1mk)

………………………………………………………………………………………………

* + - 1. (i) Identify the part labeled P. (1mk)

………………………………………………………………………………………………

(ii) Give **two** functions of the part identified in (c) (i) above. (2mks)

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

* + - 1. Using observable features only, state how bone 1 is adapted to its functions.

(2mks)

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

* + - 1. (i) Identify the part labeled Q. (1mk)

………………………………………………………………………………………………

(ii) Give the function of the part labeled Q. (1mk)

………………………………………………………………………………………………

1. You are provided with a sample of food labeled X in solution form, solution Y (Benedict’s Solution), solution J (DCPIP), Solution K (Sodium hydrogen carbonate), Solution L (1% copper sulphate), solution M (Dilute hydrochloric acid) solution N (sodium hydroxide) and filter paper. Carry out tests on the food sample to identify the type of food substance present. (12mks)

|  |  |  |  |
| --- | --- | --- | --- |
| **Food being tested for** | **Procedure** | **Observation** | **Conclusion**  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |