**A.C.K NAMBALE DIOCESE EXAMINATIONS**

**BIOLOGY 231/3**

**(PRACTICAL)**

**NOVEMBER 2021- 13/4HOURS**

**Name…………………………………………………………… Index Number……………………………**

**Candidate’s Signature………………………………………………. Date…………………………………**

**Instructions to Candidates**

1. Write your name and index number in the spaces provided above.
2. Sign and write the date of examination in the spaces provided above.
3. Answer **all** the questions in the spaces provided.
4. You are required to spend the first 15 minutes of the 13/4hours allowed for this paper reading the whole paper carefully before commencing your work.
5. Additional pages must not be inserted.
6. Candidates should check the question paper to ascertain that al pages are printed as indicated that no questions are missing.
7. Candidates should answer the questions in English.

**For Examiner’s use only**

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| --- | --- | --- |
| **Question** | **Maximum score** | **Candidate’s score** |
| **1** | **14** |  |
| **2** | **13** |  |
| **3** | **13** |  |
| **Total** | **40** |  |

1. (a) You are provided with a straw and calcium hydroxide in a test tube.

* Dip one and a half of the drinking straw into the calcium hydroxide solution.
* Place your mouth at the open end of the drinking straw. Breathe out such as to bubbles gas into the calcium hydroxide solution five times.
1. Record your observations. (1mk)

1. Explain you observations in a(i) above. (2mks)

1. Write an equation of the reaction that occurred in the test tube. (2mks)

1. Apart from the chemical substance under investigation, name two other products that were bubbled into the test tube. (2mks)

1. Name the parts followed by gases from the lungs until it is exhaled. (2mk)

(b) Examine photograph M below and use it to answer the questions that follows:-



1. State three observable features which adapt specimen M to gaseous exchange. (2mks)

 (ii) State the sub-division and class to which specimen M belongs;-

Sub-division: (1mk)

Class: (1mk)

2. You are provided with soaked bean seed, Iodine solution, Biuret’s reagent, a scalpel and a hand lens.

 By use of a scalpel, carefully cut the bean seed longitudinally such as to separate the two cotyledons.

1. By use of a dropper, smear Iodine solution onto the exposed surfaces of the first cotyledon.
2. Record your observation. (1mk)

1. Account for observation in a(i) above. (1mks)

1. By use of a dropper, smear some Biuret’s reagent onto the exposed surface of the second cotyledon.
2. Record your observation. (1mk)

1. Account for your observation in b(i) above. (1mk)

1. Explain how the type of germination in the specimen occurs. (3mks)

1. State the role of the following in the germination of a seed.
2. Oxygen (1mk)

1. Water (2mks)

1. Cotyledon (3mks)

3. You are provided with specimen labelled as K and L in a petri-dish. Examine them.

1. Identify specimens K and L. (2mks)

K: L:

1. (i) Draw and label the anterior parts of specimen K. (4mks)

 (ii)State ways by which specimen K is adapted to its functions. (3mks)

1. From which parts of the body were specimens K and L obtained?

Specimen K: (1mk)

Specimen L: (1mk)

1. Name the bone that articulates with specimen L at the:
2. Proximal end (1mk)
3. Distal end (1mk)
4. Name the type of joint formed by specimen L at the anterior part; (1mk)