**NAME.......................................................................ADM NO...............................**

**DATE............................. SIGN.....................................**

231/3

Biology paper 3

(Practical)

1 ¾ HRS

December 2021.

**MOKASA MOCK**

***Kenya Certificate of Secondary Education 2021***

231/3

Biology paper 3

(Practical)

TIME: 1 ¾ HRS

December 2021.

**INSTRUCTIONS TO CANDIDATES**

* Write your name and index number in the spaces provided at the top of this page.
* Answer all the questions in the spaces provided.

**For examiner’s use only**

|  |  |  |
| --- | --- | --- |
| **QUESTION** | **MAXIMUM SCORE** | **CANDIDATE’S SCORE** |
| **1.** | **14** |  |
| **2.** | **14** |  |
| **3.** | **12** |  |
| **TOTAL** | **40** |  |

**1.** You are provided with irish potato tuber labeled specimen **K,** use it to answer questions that follow.

Cut out two cubes whose sides measure 1cm from the irish potato provided

Label three test-tubes as, **A**, **B** and **C**  and put them into the test-tube rack.

**A )** Crush one cube to obtain a paste and add about 15 cm3 of distilled water to the paste to form a solution and then carry out the following procedure;

**i)** Use a measuring cylinder to pour 10 cm3 of potato extract solution into test-tube **A**.

**ii)** Use the measuring cylinder to transfer 5 cm3 of potato solution extract from test-tube **A** to test- tube **B**.

**iii)** Use the measuring cylinder to add 5 cm3 of distilled water to test-tube **B**. Place a stopper in test-tube **B** and shake it.

**iv)** Remove the stopper. Use the measuring cylinder to transfer 5 cm3 of the liquid in test- tube **B** to test-tube **C**.

**v)** Use the measuring cylinder to add 5 cm3 of distilled water to test-tube **C**. Place a stopper in test-tube **C** and shake it. Using a measuring cylinder reduce the volume of solution **C** to 5 cm3.

**a)** Table below shows the percentage concentration of the potato extract solution.

|  |  |
| --- | --- |
| test-tube | percentage concentration of potato extract solution |
| **A** | 100.00 |
| **B** |  |
| **C** |  |

Complete the table above by calculating and writing in the percentage concentration of potato extract solutions in test-tube **B** and **C**. (**2mks)**

**b )** Using a measuring cylinder pour 1 cm3 to each of hydrogen peroxide to the contents in test tube **A** to **C** and make the observations (**3mks)**

|  |  |
| --- | --- |
| **Test tube** | **Observations** |
| **A** |  |
| **B** |  |
| **C** |  |

**( i)** What was the aim of the investigation above (**1mk)**

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

(ii) Write the word equation for the reactions taking place in the test tubes (**1mk)**

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

**(iii)** What will be the expected observation if the irish potato was replaced with a piece of mammalian liver (**1mk)** ………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

**(iv)** Explain your answer in c (iii) above (**2mk**)

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

**(B)**  Crush the remaining cube to obtain the paste. Use the reagents provided to and carry out food test on the extract. **(4mks**)

|  |  |  |  |
| --- | --- | --- | --- |
| TEST | PROCEDURE | OBSERVATIONS | CONCLUSION |
|  |  |  |  |
|  |  |  |  |

**2.** You are provided with specimens labeled **L** and **M**. Study them then answer questions that follow:

a) Identify the specimens. **(2mk)**

**L**…………………….………………..

**M**...........................................................

b) Name the part of the body where each is found. **(2mk)**

**L**……………………………..…………….

**M**……………………………………………

c) State **three** adaptive characteristic features of the bone **L**. **(3mks)**

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d) State two observable differences between bones L and M. **(2mks)**

|  |  |
| --- | --- |
| Bone L | Bone M |
|  |  |
|  |  |

**e)** Study the diagrams below and answer questions that follow.

C

**I)** Identify the bone labelled C in the diagram. **(1mk)**

…………………………………………………………………………………………….

**II)** Name the type of joint and bone formed at the proximal and distal end of bone B **(4mks)**

Proximal end;

**(i)** Bone …………………..………………….

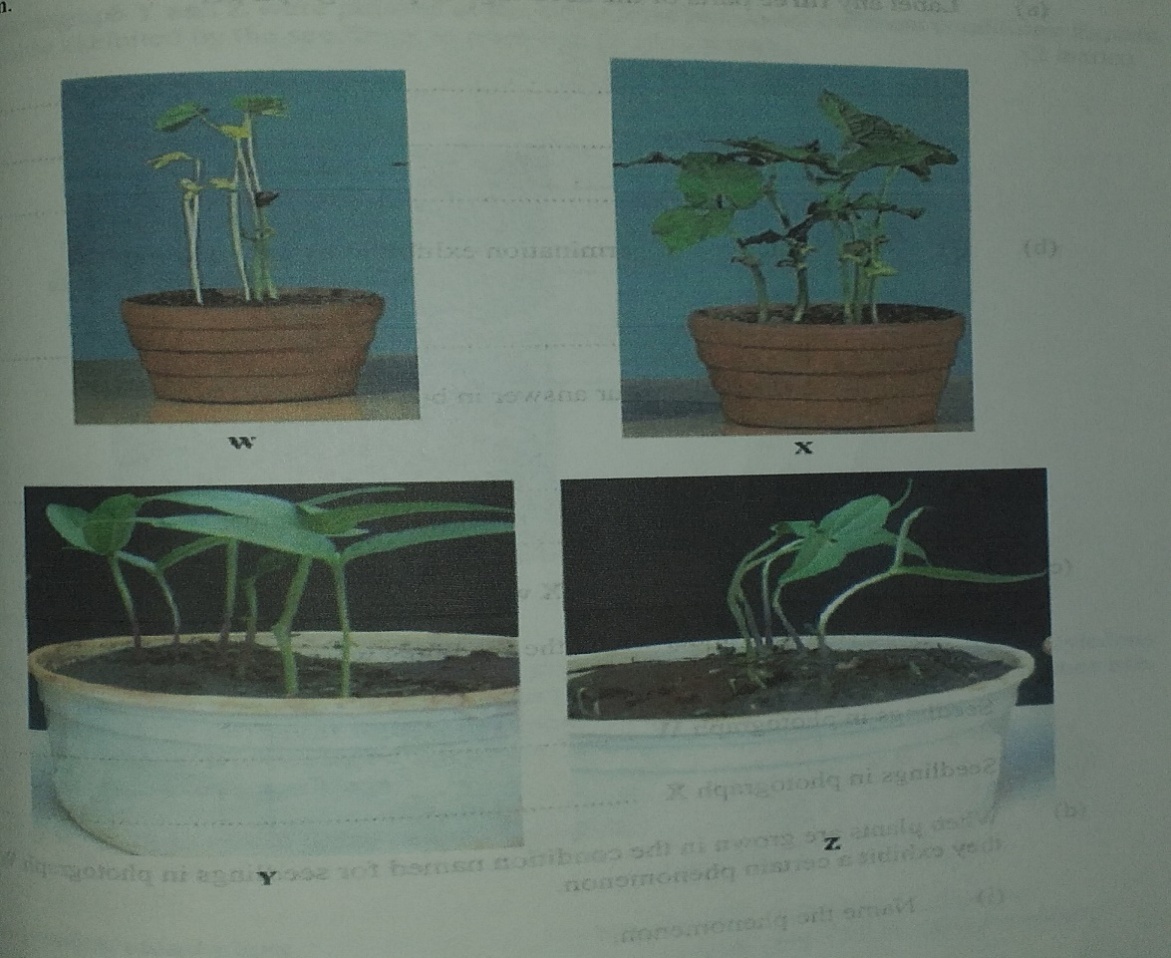
**(ii)** Type of joint ……………………………..

Distal end;

**(i)** Bone(s)………………………………….

**(ii)** Type of joint ……………………………

3. The photo graphs labelled **W, X, Y** and **Z** show seedlings that were grown under different conditions. Examine them.



(a) Label any **two** parts of the seedlings in photograph **W**. **(2 mks)**

(b)(i)Name the type of germination exhibited by the seedlings. (**1 mk)**

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

(ii) Give a reason for your answer in b(i) above.  **(1 mk)**

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

(c)Seedlings in photographs **W** and **X** were planted at the same time. State the conditions under which the seedlings were grown. **(2 mks)**

(i) Seedlings in photograph **W**.

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

(ii) Seedlings in photograph **X**.

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

(d) When plants are grown in the condition named for seedlings in photograph **W**, they exhibit a certain phenomenon.

(i) Name the phenomenon. **(1 mk)**

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

(ii) State the significance of the phenomenon named in d(i). **(1 mk)**

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

(e) Using observable features only, state **two** differences between the seedlings in photographs **W** and **X**. **(2 mks)**

|  |  |
| --- | --- |
| **W** | **X** |
|  |  |
|  |  |

(f) Seedlings in photographs **Y** and **Z** were planted at the same time but under different conditions. Explain how the response exhibited by seedlings in photograph Z occurred. **(2 mks)**

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