**FORM 4 PREDICTOR 2, 2025**

**Kenya Certificate of Secondary Education**

**231/3 BIOLOGY - Paper 3**



**(Practical)**

**PREDICTOR 2 2025 – Time 1 ¾ hours**

**Name …………………………………………….……… Adm Number………………………………**

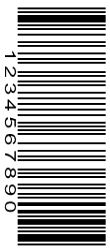
**Candidate’s Signature ……………………….…...……….. Date ……………………………**

**INSTRUCTIONS TO CANDIDATES**

1. Write your name, class and admission number in the spaces provided above.
2. Sign and write the date of the examination in the spaces provided.
3. Answer all 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. Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing

**FOR EXAMINERS USE ONLY**

|  |  |  |
| --- | --- | --- |
| **Section** | **Maximum Marks** | **Candidate Score** |
| 1 | 20 |  |
| 2 | 11 |  |
| 3 | 9 |  |
| **TOTAL SCORE** | **40** |  |



TURN OVER

1. (a) You are provided with:

* Specimen **P**,
* Solution **Y**,
* DCPIP,
* 0.1 percent Ascorbic acid.

1. To 1 cm3 of DCPIP in a test tube, add 0.1 percent solution of Ascorbic acid dropwise; shake the test tube after addition of each drop until color of DCPIP disappears. Record the number of drops used in the table below.
2. Repeat the procedure using solution **Y** and record the number of drops used in the table below.
3. Squeeze out the juice from specimen **P** into a beaker, decant, and discard the residue.To another 1cm3 of DCPIP, add the juice from specimen **P** drop by drop until the color of DCPIP disappears. Record the number of drops used. Spare the remaining juice of Specimen **P** for procedure (c) below.

|  |  |
| --- | --- |
| **Substance** | **Number of drops** |
| Ascorbic acid |  |
| Solution Y |  |
| Specimen P |  |

(3marks)

1. From the results obtained in a (i) and (iii) above, calculate the percentage of ascorbic acid in the juice obtained from specimen P. Show your working. (2 marks)

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

1. State two factors that would influence the accuracy of the results (2 marks)

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

1. Suggest the expected results if the juice from specimen P was boiled for 40 min, cooled and added drop by drop to DCPIP solution. (1 mark)

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

1. Explain the expected results in (vi) above (2 marks)

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

(b). Between Specimen P and solution Y, which do you recommend for treatment of scurvy. Give a reason for your answer. (2marks)

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

(c). i) Using the reagents provided carry out food test to determine other food present in juice of **P** besides Ascorbic acid. (6marks)

|  |  |  |  |
| --- | --- | --- | --- |
| **Food substances** | **Procedure** | **Observations** | **Conclusion** |
| Proteins |  |  |  |
| Reducing sugars |  |  |  |

ii) In which regions of alimentary canal will juice of specimen P be absorbed. (2marks)

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

2. You are provided with specimen **D** and **E** that are specimens of the same plant

a) Using observable features group the specimen into

i) Division…………………………………………………………………….………….(1mark)

Reason……………………………………………………………..……….………….(1mark)

ii)Class………………………………………………………….……………………(1mark)

Reason…………..…………………………………………………………… (1mark)

b) Press the stem of specimen **D** hard with a finger repeatedly until the stem is crushed. Record the observation.

i) Observation (1mark)

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

ii) Name the type of stem in specimen D (1mark)

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

c) Specimen **D** is the same plant as specimen **E**. E has been exposed to sunlight for 24hrs.

i) Name the phenomenon in exhibited by **E** (1mark)

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

ii) Explain how the phenomenon occurred. (2marks)

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

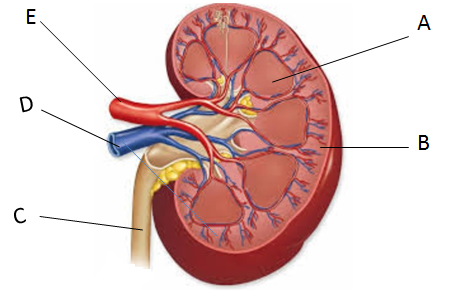
iii) Name the support tissue in the specimens D and E (1mark)

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

iv) Other than the support tissue mentioned in (iii) above, how else do plants with this type of stem obtain mechanical support. (1mark)

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

3. The photograph below is of mammalian organ



1. i. Name the basic functional units of the organ. (1mk)

…………………………………………………………………………………………

ii) State any function of the organ above. ( 1mk)

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

b) Name the parts labelled- A …………………………………..

B ………………………………….

C ………………………………….. (3mks)

c) How is the blood vessel E adapted its function. (2mks)

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

d) Give two differences between blood flowing through vessel E and D (2mks)

|  |  |
| --- | --- |
| **Blood in E** | **Blood in D** |
|  |  |
|  |  |