**BIOLOGY PAPER 3**

**FORM 3**

**END TERM 2 2024**

**MARKING SCHEME**

1. Study the photographs below and answer the questions that follow.



**SPECIMEN Q SPECIMEN R**

a) The two specimen belong to the same Phylum. Giving **two** reasons, name the phylum of the specimen. ( 3 marks)

i) Phylum **arthropoda**

ii) Reasons

* **segmented body**
* **jointed appendages**
* **prescence of exoskeleton**

b i) Name the **class** to which the specimen belong. (1mark)

**class insecta**

ii) State **three** characteristic features common to both specimens that support your answer. (3 marks)

* **segmented body**
* **jointed appendages**
* **prescence of exoskeleton**

1. Based on observation from the photos, state how the mouthparts of specimen **Q**

and **R** are adapted to their functions. (2 marks) Specimen **Q**

**has proboscis and stlyle for sucking nectar**

Specimen **R**

**Small mandibles for chewing and biting**

ii) Citing visible features, state **two** modes of locomotion for specimen **Q**.

(2 marks)

**wings**

**limbs**

2. a) Starch1

b) Diffusion 1

c) Iodine molecules are highly concentrated; moves into the Visking tubing by diffusion; reacting

with solution x; thus blue-black colour observed in the Visking tubing; confirming x to be starch;

d)

|  |  |  |  |
| --- | --- | --- | --- |
|  | Procedure | Observation | Conclusion |
| Reducing sugar | 2 ml of solution x in a test tube, add equal volume of Benedicts’ Solution and boil (Accept specified number of drops of reagent). | Blue colour of Benedicts’ Solution retained. | Reducing sugar absent. |
| Non-reducing sugar | 2 ml of x in a test tube, add 5 drops of dilute HCl, warm over hot waterbath, remove cool, and NaHCO3 solution dropwise, shaking after every drop until fizzling stops. Add 5 drops of Benedicts’ solution and boil. | Colour changes from blue, green, yellow and finally orange.  NB: The sequence of the colour changes must be correct. | Non – reducing sugar present. |
| Protein | 2 ml of x in a test tube, add 5 drops of NaOH solution and shake, add 5 drops of CuSO4 solution and shake. | Purple/violet colour observed. | Protein present. |

3. Study the photographs below and answer the questions that follow.



**K**

**Q**

a i) Suggest the agent of pollination for specimen **Q**. ( 1 mark)

**insects**

ii) Give **two** adaptations of the flower that support your answer in a (i) above.

(2 marks)

**Brightly coloured**

**Funnel shaped petals**

**Small bract**

State **five** differences between specimen Q and K. (5 marks)

|  |  |
| --- | --- |
| **Specimen Q** | **Specimen K** |
| **Brightly coloured** | **dull** |
| **smooth** | **hairy** |
| **red** | **Purple** |
| **Large and conspicuous** | **Small and inconspicuous** |
| **Many anthers** | **Few anthers** |

1. On the photograph of specimen K, label the following:- ( 2 marks)
   1. **Stigma**
   2. **Anther**