**Maliet exam**

**231/3**

**BIOLOGY**

**MARKING SCHEME**

**CONFIDENTIALS**

Each candidate should be provided with the following items.

* 80 ml of iodine solution.
* 100ml beaker (glass or plastic)
* Means of timing. A wall clock will be appropriate.
* 10ml measuring cylinder.
* 100ml water is 250ml beaker.
* A ruler with mm marking.
* Medium size semi-ripe tomato labelled specimen P.
* 10ml of 10% starch solution labelled X.
* Scalpel.

**MARKING SCHEME**

1. (a) (i)

D2

Epicarp ✓

D1

Mesocarp ✓

Seed ✓

Endocarp ✓

Placenta ✓

NB

D1= Proportionality name

* Features/structures must be of appropriate size. L = $\frac{5}{2}$ = Max 2 Marks

D = 2 Marks

Total 4 Marks

 D2 = Accuracy

 - No broken outlines

 - No shading

 - All structures must be shown

 If D1 is wrong reject D2

 (ii) $\frac{Length of Drawing}{Length of Actual specimen}$ = $\frac{5cm}{4cm}$ = 1.25

 1 Mark

 (b) (i) Berry/Succulent

 (ii) – Juicy endocarp

 - Has several seeds (which develop from fused carpel)

 (c) (i) Axile placentation/Central placentation. Rej. Free central

 (ii) Placenta is located at axis of the fruit.

 (d) (i) Animal(s) Rej. Insects

 (ii) – Brightly coloured to attract animals

 - Juicy to attract animals which feed on it.

 - Seeds are covered with hard testa to resist being digested by enzymes in animal’s gut. Mark first 2 (2 x 2 = 4 Marks)

 NB. – Earth marks are tied.

 - Rej. if description of feature is not linked with function.

2. (a)

|  |  |  |  |
| --- | --- | --- | --- |
| Food substance | Procedure | Observations | Conclusion |
| Reducing sugars | To a sample of the juice, add an equal volume of benedicts solution. Then boil/heat | Colour changes from blue to green to yellow to orange/brown. | Reducing sugar present |
| Vitamin C ascorbic acid | To a small volume of DCPIP in a test-tube, add the juice drop by drop, shaking the test tube after each drop. | The blue colour of DCPIP disappears/DCPIP is discolourised | Vitamin c/ascorbic acid present |

 (8mks)

 b (i)

|  |  |  |  |
| --- | --- | --- | --- |
| Food substance | Procedure | Observations | Conclusion |
| Reducing sugar | To a sample of the juice, add an equal volume of benedicts solution. Then boil/heat | Colour changes from blue to green to yellow to orange/brown. | Reducing sugar present |
| Vitamin C/ascorbic acid | To a small volume of DCPIP in a test-tube, add the juice drop by drop, shaking the test tube after each drop | No observable colour change/blue colour of DCPIP persists | Absence of vitamin C |

 (4mks)

 NB: Award marks for observations and conclusion only unless the student did not

 score for food substance and procedure in 2 (a)

 Total 12 mks

3. (a)

 1. (b) Jointed legs absent.

 2. (a) Three pairs of legs.

 4. (b) One pair of wings.

 6. (a) Shell present.

 Total 4mks

 (b)

|  |  |  |
| --- | --- | --- |
| Organism | Steps followed | Identify |
| C | 1b, 6a | Snail |
| E | 1a, 2a, 3a, 4b | Housefly |
| F | 1a, 2a, 3b | Bedbug |
| H | 1a, 2b, 5a | Cray fish |
| G | 1a, 2a, 3a, 4a | Dragon fly |

 (10mks)

 NB: Each correct step - 1mk

 Each correct identity - 1mk

 Wrong step deny for identity