BIOLOGY MARKING GUIDE

1. a) (i) Dorso – ventrally flattened and tapers towards the snout which makes it streamlined to ease entry into hidden places/reduces water resistance during swimming. (02mks)

(ii) Large and protruding/bulging to provide a wide field of vision

Covered by nictitating membrane to prevent entry of foreign particles/secrete a fluid to lubricate eyes to avoid drying. (02mks)

b) Drawing of the right hind limb with observable thigh muscles which is fully stretched of specimen Q

Diagram

c) Drawing of vessels that supply blood to the head region from heart and those that drain blood from left structures of alimentary canal displaced to left and organs beneath it back to heart including undisplaced anterior organs of specimen Q

Diagram

Accept ovary for testis

D – 11

L – 11

T – ½

M – ½

O – ½

N – ½

ACD – 01

2. a) Table 1

|  |  |  |  |
| --- | --- | --- | --- |
| Test | Observations | | Observations |
| Iodine test  To 1cm3 of solution add 3drops of iodine solution | R | Turbid solution turns to black solution | Much starch present |
| S | Turbid solution turns to pale brown/yellow solution | Starch absent |
| T | Pale yellow solution turns to pale brown solution | Starch absent |
| Benedict’s test  To 1cm3 of solution add 1cm3 of Benedict’s solution and boil | R | Turbid solution turns to pale blue solution | Reducing sugars absent |
| S | Turbid solution turns to pale blue/purple solution | Reducing sugars absent |
| T | Pale yellow solution turns to pale green to yellow precipitate to orange precipitate | Much reducing sugars present |
| Buinet test  To 1cm3 of solution add 1cm3 of NaCH(aq); add 3 drops of CuSO4(aq) | R | Turbid solution turns to deep purple/violet solution | Much/moderate proteins present |
| S | Turbid solution turns to deep purple solution | Much proteins present |
| T | Pale yellow solution turns to pale purple solution | Little proteins present |

**b) Table II**

|  |  |  |  |
| --- | --- | --- | --- |
| **Test** | **Test tube** | **Observations** |  |
| Iodine test | R1 | Purple/pale black solution | Moderate/little starch present |
| R2 | Purple/pale black solution | Moderate/little starch present |
| Benedict’s test | R1 | Yellow precipitate | Moderate reducing sugars present |
| R1 | Yellow/orange precipitate | Moderate/much reducing sugars present |
| T | Green solution/yellow precipitate | Moderate reducing sugars present |
| Biuret test | R1 | Pale purple solution | Little proteins present |
| R2 | Pale purple solution | Little proteins present |
| S1 | Deep purple solution | Much proteins present |
| S2 | Pale purple solution | Little proteins present |

13 ½ mks

Solution T had enzymes that catalyzed breakdown of proteins and starch to reducing sugars, solution V had enzymes that catalyzed breakdown of starch, and reducing sugars whose concentration decreased but not proteins. @ 1mk (04mks)

3. a) (i)

|  |  |
| --- | --- |
| **W** | **X** |
| Spherical rounded cells | Rectangular cells |
| Thin cell walls | Thick cell walls |
| Starch grains present | Starch grains absent |
| Air spaces between cells | Cells closed packed |
| No nucleus visible | Nucleus visible |

@ 1mks (1st four)

(ii) Starch grains for food storage

Air spaces for gaseous exchange

Thin cell walls to allow water uptake to become turgid to provide support

Diagram

D – 1 ½

L – 1 ½

NC – 01 (04mks)

b) (i) Numerous seeds attached at three peripheral placental regions pointing inwards in a random crowded manner

(ii)

|  |  |
| --- | --- |
| **Y** | **Z** |
| Thick epicarp | Thin epicarp |
| Spongy mesocarp | Fleshy mesocarp |
| Elongated seeds | Rounded seeds |
| Longer funicle | Shorter funicle |

(iii) Drawing of the longitudinal section of specimen Z

Diagram

D – 2 ½

L – 2 ½

T – ½

M – ½ (06MKS)

(iv) Brightly coloured/juicy endocarp which attracts animals to eat whose seeds are indigestible and passed out away from parent plant. (01mks)