**MARKING SCHEME BIOLOGY FORM 3 PAPER 3 TERM 2**

1. a) i) Visking tubing swells/ becomes turgid; (1X1 = 1mk)

ii) High concentration of water molecules in the beaker/ distilled water compared to the visking

tubing/ solution K; Water molecules move by osmosis from beaker into visking tubing;

(1X2 = 2 mks)

b) **I VISKING TUBING**

|  |  |  |  |
| --- | --- | --- | --- |
| **TEST**  **I BEAKER** | **PROCEDURE** | **OBSERVATIONS** | **DEDUCTIONS** |
| **STARCH** | Put food sample in test tube add iodine solution ; | Dark blue/ Blue black/ Black; | Starch present; |
| **REDUCING SUGAR** | Put food sample in a test tube add ( equal amount of Benedicts solution heat / warm / heat in a water bath | For blue, green, yellow/orange/red; | Reducing sugar present;  4mks |
| **II BEAKER** |  |  |  |
| **STARCH** | Put food sample in a test tube add iodine solution ; | Remain yellow brown; | Starch absent; |
| **REDUCING SUGAR** | Put food sample in a test tube add (equal amount solution heat / warm/ heat in a water bath; | Mixture turns from blue, green, yellow/ orange/red; | Reducing sugar present; |

**NB: Procedure must be correct to preceede marking observation and conclusion / deductions** (6 mks)

c) Starch molecules are large compared to glucose/molecules; Small sugar/ glucose molecules

pass through the pores of visking tubing/ but not the large starch molecules;

**OR**

Visking tubing is semi-permeable/allows only small sugar molecules but not large starch

molecules. (3 mks)

Mark as a whole

1. Young stems Accept Stem alone (1x1 = 1mk)
2. Similarities (2 mks)

* Both have vascular bundles with xylem and phloem
* Both have the cortex
* Both have the pith (1 x 2 = 2mks)

Differences

* Organ from which section A was obtained Organ from which section B was obtained
* Vascular bundles are arranged in a Vascular bundles scattered concentric ring
* Pith is centrally placed Pith is scattered in the stem
* Cambium layer is present Cambium layer is absent

(1 x 3 = 3mks)

1. Plant represented by diagram A has the cambium layer hence undergoes secondary thickening to form large structured plants which survives for a longer period of time. (1 x 3 = 3mks)
2. Parenchyma cell (1 x 1 = 1mk)

* Epidermis
* Endodermis
* Cortex
* Vascular bundle
* Cambium rings (1 x 5 = 5mks)

a) (i) Arthropoda; Reject Arthroponda; Anthropoda (1 x1 = 1 mk)

(ii)

* Presence of exoskeleton;
* Have segmented body;
* Jointed appendages (1 x 3 =3mks)

b) (i) R – Insecta Reject insect

Q – Arachnida Reject arachnid (1 x 2 =2mks)

(ii) R

* + - Three body regions;
    - One pair of antennae
    - One pair of compound eyes
    - One pair of spiracles per segment Accept Three pairs of legs (1 x 2 = 2mks)

Q

* Body divided into two parts (Cephalothorax and abdomen);

Accept four pairs of walking legs (1 x 2 = 2mks)

c)

* Crustacea
* Millipede
* Centipede (1 x 3 =3mks)