

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 = 2mks)

b) **I VISKING TUBING**

| TEST | PROCEDURE | OBSERVATIONS | DEDUCTIONS |
|-----------------------|--|---|---------------------------------|
| I BEAKER | | | |
| 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 precede 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.

(3mks)

Mark as a whole

2.

- a) Young stems Accept Stem alone (1x1 = 1mk)
- b) Similarities (2mks)
- 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)

- c) 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)

- d) Parenchyma cell (1 x 1 = 1mk)

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

3.

- a) (i) Arthropoda; Reject Arthropoda; Anthropoda (1 x 1 = 1mk)
- (ii)

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

- b) (i) R – Insecta Reject insect (1 x 2 = 2mks)
- Q – Arachnida Reject arachnid

(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)