SUNRISE 1 EXAMINATION TERM 1

FORM FOUR

BIOLOGY

PAPER 3

MARKING SCHEME

1. a) i)

|  |  |  |
| --- | --- | --- |
| Cylinder | Length in cm | texture |
| Liquid s1 | 5.1-5.2 | (very hard /stiff/firm |
| Liquid s2 | 4.9-4.8 | Soft /flabby/flexible |

ii) S1 has lower concerntration /lower osmotic pressure /hypotonic /more dilute than the cell sap of potato cells; water enters the potato cell by osmosis making the cells turgid /increasing the size of cells;

S2 has higher concentration / higher osmotic pressure /hypertonic than cell sap of potato cells;water is lost from the cell by osmosis making them flaccid /decreasing the size of cels.l ***(4marks)***

b i) Test tube A ; less foam /bubbles /froth formed /slow effervescence /fizzing /frothing;

Test tube B: more foam /bubbles /froth firmed //rapid effervescence /fizzing /frothing;

Test tube C: little /small bubbles formed; ***3marks***

ii) Hydrogen catalase water +oxygen

Peroxide  ***1mark***

iii) **Test tube A**

The potato pieces provide a smaller surface area for enzyme action

**Test tube B**

The crushed potato cylinder provides a larger surface area for enzyme action

**Test tube C**

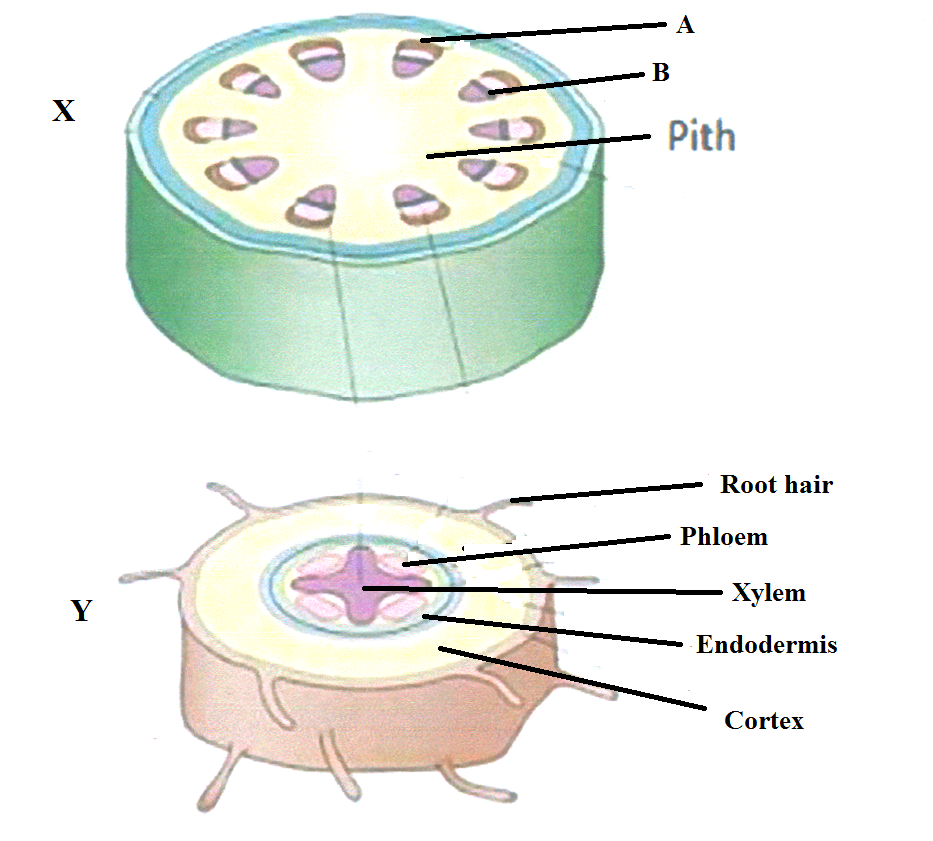
Dilute hydrochloric Acid alters /lowers the ph making it less favourable /suitable for enzyme catalase activity

***(6marks)***

1. a)

|  |  |
| --- | --- |
| X | Y |
| Xylem in a ring | Xylem star shaped |
| No root hair | Presence of root hair |
|  |  |

b).



c). **A** Sclerenchyma;- Provide strength and support;

**B** Cambium; –Give rise to new Xylem and new Phloem;

d). In monocots, the vascular bundle is scattered in the ground tissue; No pith; No cambium;

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



1. Give **two visible** survival adaptive features for the organism in photograph **X**  (2mks)

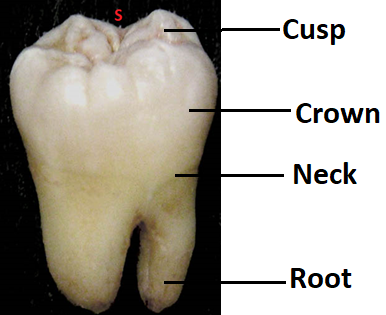
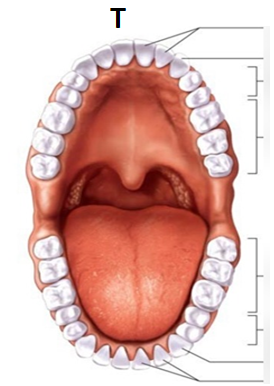
* **Presence of ( large/long/curved) sharp/sharp pointed canine for piercing ;**
* **Camouflage/blend well with environment concealing/hiding themselves from their predators/prey ;**
* **Presence of fur to insulate against the low temperature**

1. Identify the dentitions exhibited in photograph **Y** and **Z**  (2mks)

**Y** **Heterodont**

**Z** **Homodont**

1. Study the photographs below showing a certain type of tooth and teeth arrangement in man.

1. Label any **three** parts of the tooth in photograph  **S**  (3mks)
2. Give **two** observable adaptations of the tooth to its function (2mks)

* **Broad surface to increase surface area for chewing**
* **Cusps /ridges to increase surface area for chewing**

1. Write the **dental formula** for the teeth arrangement in photograph **T** (1mk)

**2 1 2 3**

**i — c - pm — m -**

**2 1 2 3**

**Reject**

* If Commas and capital letters are used in the dental formula
* **If Divisional line is missing in the dental formula**