**BIOLOGY MARKING SCHEME PAPER 3**

**MARKING SCHEME**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **SUBSTANCE** | **FOOD SUBSTANCE BEING TESTED FOR** | **PROCEDURE** | **OBSERVATION** | **CONCLUSION** |
| M | Reducing Sugars√ | Put about 2cm3 of M into a test tube.  Add equal amount of Benedict’s solution; and / heat to boil; (2mks) | Co colour changes from blue to green and yellow. / colour changes from blue to green. (½ mk)  ( | Reducing sugars present / little reducing sugar is present;√ (½ mk) |
| Proteins√ | (To M)  Add (10%) sodium hydroxide solution then (1%) copper sulphate solution√ (drop wise)(1mk) | Colour changes to purple  (½ mk) | Proteins present √(½ mk) |
| Lipids√ | Pour a drop of M onto the filter paper and dry√(1mk) | No permanent translucent spot formed√.(½ mk) | Lipids absent;√ (½ mk) |
| N | Reducing sugars | (To N) add Benedict’s solution and / heat to boil / boil | Colour changes from blue to green;√ (½ mk) | Little / traces reducing sugars present √(½ mk) |
| Proteins | (To N) add (10%) sodium hydroxide solution then (1%) copper sulphate solution ( drop wise) | Colour changes to purple  (½ mk) | Proteins present;√ (½ mk) |
| Lipids | Pour a drop of N onto the filter paper and dry. | A permanent translucent spot forms √(½ mk) | Lipids present;√ (½ mk) |

b) **Reducing sugars;**

* Source of energy when oxidized
* Are condensed to form starch for storage in plants / glycogen for storage in animals

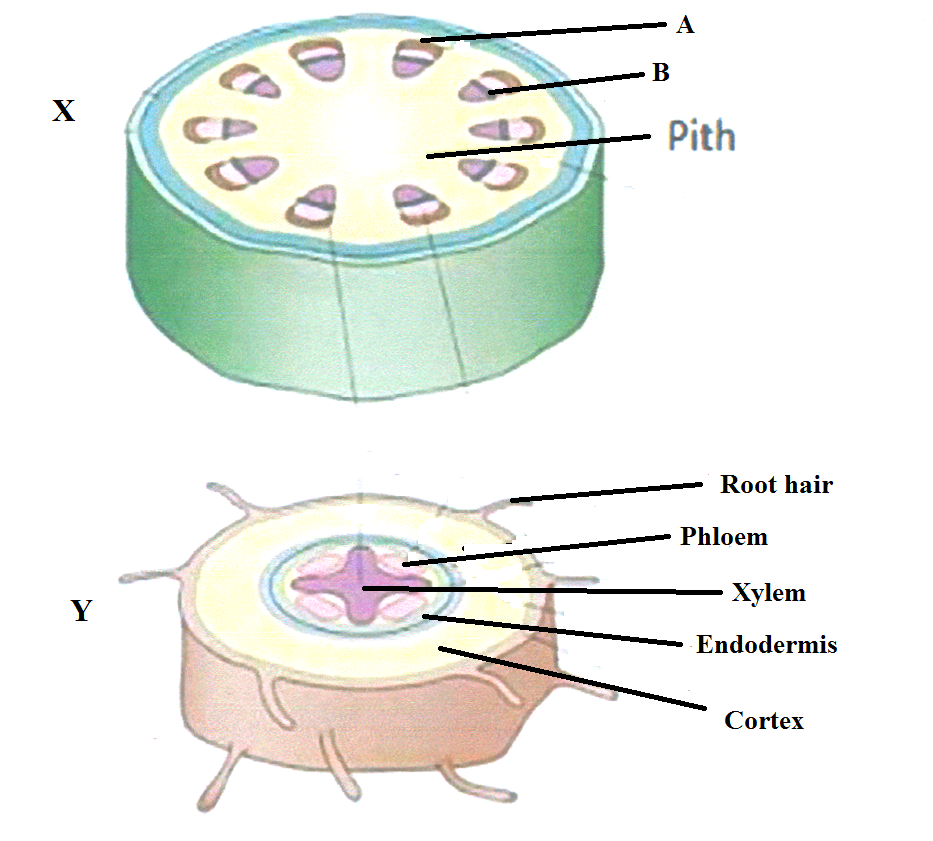
**Proteins**

* Forms structures in living organisms
* Forms metabolic regulators / enzyme / hormones
* Source of energy during starvation;

2.a)

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

b)

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

**B** ; cambium; -Give rise to new Xylem and new phloem/secondary growth

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

3. a) Drupe

b) **M** – wind dispersal; – has hair like structures to increase surface area so that they can be blown by wind;

**K**- Animal dispersal; – has persistent calyx to attach to the animals;

**N** – Wind dispersal; – has extended pericarp to increase surface area so that it can be blown by wind;

