

## MARKING SCHEMES

### Question

NO	TEST TUBE	OBSERVATION	CONCLUSION
1	D + iodine	Iodine solution turns blue black;	Starch present;
2	D + E + iodine	Turns colourless/ brown colour of iodine persists;	Starch absent;
3	D + Benedict's solution	Remains blue/no colour change;	Reducing sugars absent;
4	D + E + Benedict's solution	Benedict's solution Turns green, yellow, orange and then brown;	Reducing sugars present

- a) i) Breaks down (hydrolyses) starch; into maltose/reducing sugar;
- ii) Provides optimum/suitable temperature; for activity of E/enzymes
- b) Salivary Amylase/Ptyalin/Amylase/Pancreatic Amylase;
- c) Substance D tests negative with Benedict's solution because it is a complex/polysaccharide; addition of E on heating gives positive results with Benedict's solution, since E hydrolyses, the starch/complex sugar into simple sugars; testing positive.

OR

Starch in D/D is a non-reducing sugar/complex sugar/polysaccharide/not a reducing sugar; starch is hydrolysed/digested/broken down into reducing sugars by E/Amylase in E/Amylase/Diastase/enzyme in E

### Question 2

- a) Geographical distribution of living organisms
- b) i) M
- ii) Animal M is at a higher trophic level than L/M feeds on L/M is a tertiary consumer while L is a secondary consumer; biomass reduces upwards in a food chain/energy is lost from a lower trophic level to upper trophic level/energy is lost from the producers to the consumers;

- c) The ecosystem consists of different organisms that compete for resources/struggle to exist; the well adapted ones survive; perpetuating these traits to the next generation; M is more powerful/stronger/well adapted/more endowed attacks/kills and feeds on L;
- d) -Both animals/M and L camouflage/blend well with environment ; concealing/hiding themselves from their predators/prey ;
- L covered with scales ; to minimize dessication//protect against sharp objects/stones /thorns mechanical injury/damage ;
- Animal M is stronger/more muscular; to attack/ kill/suffocate/strangle the prey ; (4mks)

### Question 3

- (a) (i) Epigeal
- (ii) - cotyledons are above the ground
- (b) (i) - positive hydrotropism in roots  
- positive phototropism in shoot.
- (ii) - Phototropism enables plants (shoot) to obtain optimum light for photosynthesis.  
- Hydrotropism by roots enables plants to absorb water and mineral salts for metabolic processes.
- (c) i) - plate 6 - stamen  
- plate 7 - pistil
- (b) i) Dioecium  
ii) Facilitates pollination leading to variation within the species and increase in hybrid vigour.
- (c) i) Wind pollination  
ii) Small inconspicuous bracts; that are dull coloured
- (d) i) cross pollination.  
ii) - male and female parts occur in different plants.  
- The plant pollen grains are sterile to the stigma of the same plant.