

- (ii) Subcutaneous fat layer / adipose tissue;  
Fur / hair;

(2 Marks)

- (d) Are active always; (even under very cold conditions)  
Are able to escape from predators/search for mates/food; (because they are active always)  
Can survive in a wide variety of habitats: (both cold and hot) WTTE

6. Pollen grains land onto the stigma; and adhere to it as a result of the stigma cells secreting a sticky substance; It absorbs nutrients; and germinates forming a pollen tube; The pollen tube grows down the style to the ovary; deriving nourishment from surrounding tissues; The pollen tube has tube nucleus at the tip; and generative nucleus immediately behind it; As the tube grows downwards into the ovary the generative nucleus divides mitotically; to give rise to two nuclei; which represent the male gametes; The pollen tube penetrates the ovule/embryo sac through the micropyle/chalazassa; After the pollen tube enters the embryo sac, the tube/vegetative nucleus breaks down; leaving a clear passage for the entry of the male nuclei; which enter the embryo sac; where one fuses with the egg cell nucleus; to form a diploid zygote; which develops into an embryo; The other male nucleus fuses with the two polar nuclei; to form a triploid nucleus /primary endosperm nucleus; Which becomes endosperm; This type of fertilization is called double fertilization;

(22 Marks)

Max. 20 Marks

7. Movement of fish in water is by swimming; It involves forward movement and control of the body position in water; Scales overlapping backwards/mucus/streamlined body shape reduces resistance/friction to enhance forward movement; Forward movement (propulsion) is caused by the tail; The tail is (almost half the length of the body of the fish) to enable it create enough force (to enable the fish to push forward); Propulsion is achieved when the tail pushes sideways against the water; Sideways movements is brought about by muscles arranged in segmented blocks/myotomes on both sides of vertebral column; The muscles contract alternately causing the vertebral column to swing sideways; When muscle blocks on the right relax and those on the left contract; the body bends to the left side; When the muscles of the left relax and those on the right contract; the body bends to the right; The fish uses its fins to control the position of its body in water; During forward movement paired fins/pectoral and pelvic fins lie flat on the body surface to reduce resistance/friction; To change direction the fish uses the paired fins; Paired fins are also used by fish to change its level in water/control/prevent pitching; The fish spreads out the pectoral and pelvic fins at 90° to the body; to enable it to brake; Fish can also use the swim bladder to change its level in water; When the bladder fills up with air the fish becomes lighter/more buoyant; making it to rise in water; When the air leaves the bladder the fish becomes heavier; making it to sink deeper in the water; water currents may cause the sideways swaying of the body of the fish/ yawing; Dorsal and ventral fins prevent rolling/yawing;

(25 Marks)

Max. 20 Mark

### 30.4.3 Biology Paper 3 (231/3)

1. (a)

	Procedure	Observations	Conclusion
Iodine test	Add (a few drops of) iodine (to liquid in the beaker);	No change in colour/Brown/yellow /orange colour of iodine retained;	Starch absent;
Benedict's test	(To 2 ml of the liquid from the beaker),(2 ml of) Benedict's solution is added. The mixture is heated/boiled/warmed in a water bath;	The solution acquires a brick red colour; Yellow/orange/brown/reddish brown. NB. Colour sequence must be correct	Reducing sugar is present;

(6 marks)

(b)

	Procedure	Observations	Conclusion
Iodine test	Add (a few drops of) iodine (to contents of visking tubing);	Solution acquires a blue black colour/blue/black/bluish Black colour;	Starch present;
Benedict's test	(To 2 ml of the liquid from the beaker), (2 ml of) Benedict's solution is added. The mixture is heated/boiled/warmed in water bath;	The solution acquires a yellow/orange/brown/reddish brown colour;	Reducing sugar is present;

(2 marks)

Observations and conclusion that is repeated to be awarded once in (a) and (b).

(c) The visking tubing in semi-permeable/selectively permeable; allowing (the small) reducing sugar molecules to diffuse/move pass through; but (not the large molecule of) starch; (3 marks)

- NB.
- (i) spelling of reagents must be correct.
  - (ii) Quantities of reagents and test materials if stated must bear correct units e.g. ml/cm<sup>3</sup>
  - (iii) Procedure for Iodine to be awarded once in(a) and (b) Procedures, observations and conclusion for Benedict's Test to be awarded once in (a)/or (b).
  - (iv) Award if student refers to Iodine as solution E, Benedict's solution as solution F and contents of visking tubing as L.
  - (v) Deny all marks if student writes a wrong food substance in the Test column e.g. Non-reducing sugar.

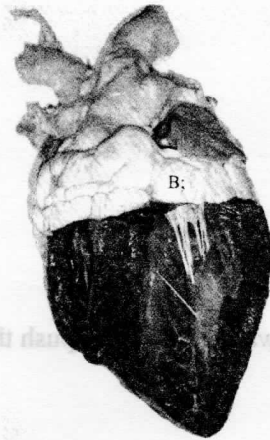
2. (a) <b>String</b>	<b>Chamber</b>	<b>Blood vessel</b>	
Blue	right ventricle;	pulmonary artery;	
Green	left ventricle;	(branches of) aorta;	
Cream 1	right auricle/atrium	vena cava;	
Cream 2	left auricle/atrium;	pulmonary vein	(8 marks)

(b)(Inter-ventricular) Septum; (1 mark)

(c) 4 is thicker than 5, because the latter (forms the wall of the chamber that) pumps blood to the lungs and 4 (forms the wall of the chamber that) pumps blood to all the other parts of the body; Distance be compared i.e. longer if the parts are not named. (1 mark)

- (d) X Vein(s);  
Reason: It has thin walls/ less muscular walls;  
Y Artery(Arteries);  
Reason: It has thick walls/more muscular walls; (4 marks)

(e)

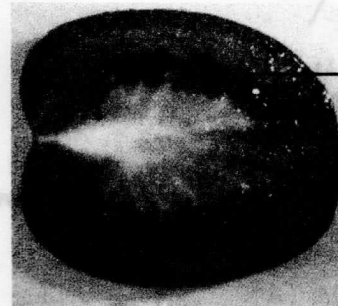
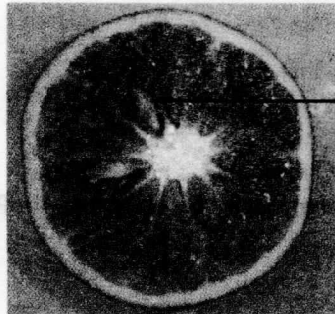


NB: (i) Accept any point of the region marked.  
 (ii) Labelling rules to be adhered to e.g. continuous line, no arrow head to structure.  
 (1 mark)

- (a) **Q** Marginal;  
**R** Axial/axile/central;  
**S** Central;

(3 marks)

(b)



(2 marks)

- (c) 6 Epicarp/Exocarp;  
 7 Seed; Acc cotyleone(s)  
 8 Edocarp;  
 9 Mesocarp;  
 10 Remain of flower stalk/pedice/fruit stalk;

(5 marks)

(d) **Q** Self (dispersal)/self explosive/explosion (mechanisms/explosive mechanism/self Dispersed);

Reason **T** Presence of sutures/lines of weakness/dehiscence (along which it splits);  
 By animal(s)/animal dispersed;

Reason The fruit is fleshy succulent/brightly coloured/fleshy mesocarp (and animals eat and drop the seed on another place far away from the mother plant);

(4 marks)