
BIOLOGY PAPER 3

ANSWERS

KCSE 2010

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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 is 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/cm³
 - (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.

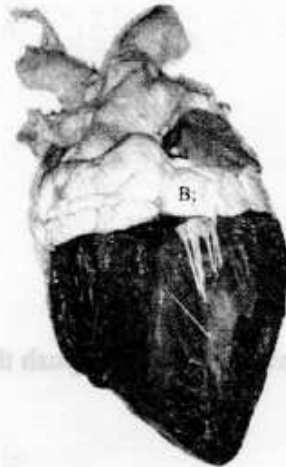
2. (a) String	Chamber	Blood vessel	
Blue	right ventricle;	pulmonary artery;	
Green	left ventricle;	(branches of) aorta;	
Cream 1	right auricle/atrium	vena cava;	
Cream 2	left auricle/atrium;	pulmonary vein	(8 marks)

(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)

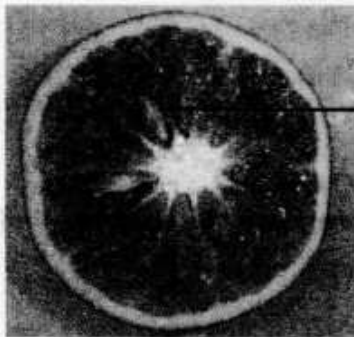


NB: (i) Accept any point of the region marked.
(ii) Labelling rules to be adhered to e.g. continuous line, no arrow head to structure.
(1 mark)

- (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/pedicel/fruit stalk;

(5 marks)

- (d) Q Self (dispersal)/self explosive/explosion (mechanisms/explosive mechanism/self Dispersed);
Reason Presence of sutures/lines of weakness/dehiscence (along which it splits);
T By animal(s)/animal dispersed;

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

(4 marks)