



*Rewarding Learning*

**General Certificate of Secondary Education  
2011–2012**

---

**Science: Double Award (Modular)**

**Living Organisms and the Processes of Life  
End of Module Test**

**Foundation Tier**

**[GDA01]**

**TUESDAY 15 MAY 2012**

**9.15 am–10.00 am**

---

**MARK  
SCHEME**

- 1 (a) Benedict's [1]
- (b) Food sample + reagent in test tube (placed in beaker of water);  
Heat/boil [2]
- (c) Blue → orange red/red/orange/brick-red (not brown) [1]

- 2 (a) Palisade/mesophyll cell [1]
- (b) absorbs *light* energy;  
for *photosynthesis* [2]
- (c) Any **two** from

Plant cell	Sperm cell
Has cell wall	No cell wall
Has chloroplasts	No chloroplasts
Has large vacuole	Has no large vacuole
No tail	Has tail
No head	Has head

- 3 (a) × 40 [1]
- (b) Any **three** from:  
Place strip of epidermis on (microscope) slide;  
Add drop of iodine stain/methylene blue/water;  
Lower on coverslip;  
At an angle to avoid trapping air bubbles;  
Secure with clips; [3]

AVAILABLE  
MARKS

4

5

4

			AVAILABLE MARKS
<b>4</b>	<p>(a) <span style="border: 1px solid black; padding: 2px 10px;">Assimilation</span> ;</p> <p><span style="border: 1px solid black; padding: 2px 10px;">Absorption</span> ;</p> <p><span style="border: 1px solid black; padding: 2px 10px;">Egestion</span></p>	<p>All <b>three</b> correct = 2 marks</p> <p>1 correct = 1 mark</p> <p>[2]</p>	
	<p>(b) Amylase breaks down/digests starch; into glucose/maltose/sugar; Present both in mouth and ileum to ensure all starch digested/starch digestion is not completed in the mouth or to continue digestion.</p>	<p>[3]</p>	5
<b>5</b>	<p>(a) Destarch the plant/place in dark cupboard for period of time</p> <p>(b) Blue-black/starch present</p> <p>(c) Respiration/energy/cellulose/protein/fats/oils/sucrose/chlorophyll</p>	<p>[1]</p> <p>[1]</p> <p>[1]</p>	3
<b>6</b>	<p>(a) Any <b>two</b> from: Same sterilisation temperature used; Same concentration of broth; Same volume of broth; Keep flasks at same temperature; Same type of broth used</p> <p>(b) Bacteria caught/trapped in the swan neck/bacteria cannot enter the broth</p>	<p>[2]</p> <p>[1]</p>	3
<b>7</b>	<p>(a) Root hair cell</p> <p>(b) Minerals/named mineral/nitrates/Ca/Mg</p> <p>(c) Stoma/stomata</p> <p>(d) Carbon dioxide/CO<sub>2</sub></p>	<p>[1]</p> <p>[1]</p> <p>[1]</p> <p>[1]</p>	4

		AVAILABLE MARKS
8	(a) Respiration/energy release	[1]
	(b) Any <b>two</b> from: Insulin released; causes glucose to be converted to glycogen; in the liver; glucose to be converted to fat; <b>more/increased</b> respiration of glucose; <b>more/increased</b> uptake into cells	[2]
	(c) Hepatic portal vein	[1]
9	(a) Any <b>three</b> from: Blockage in artery/clot; Less blood flow through artery; so less glucose/oxygen; less respiration/energy; for heart muscle to contract/heart muscle dies	[3]
	(b) Nicotine	[1]
10	(a) Keep trachea open/prevent it from collapsing/support	[1]
	(b) Any <b>two</b> from: These are the <i>intercostal muscles</i> ; <i>Contract</i> during inspiration; so ribs move up or out; Increased volume/decreased pressure/lungs expand	[2]
	(c) Blood <i>capillaries</i>	[1]
11	(a) A – Right atrium B – Aorta	[2]
	(b) C is deoxygenated/D is oxygenated; C has more CO <sub>2</sub> /D has low CO <sub>2</sub>	[2]

4

4

4

4

**12 (a)** Any **two** from:  
 Bacteria/microorganisms *caught in the mucus*/germs/dust caught in mucus;  
 Wafted by ciliated epithelial cells/moved by cilia/hairs;  
 Swallowed;  
 Killed by hydrochloric acid in stomach [2]

**(b)** Any **four** from:  
*Antigens* on surface of microorganism;  
 stimulate the production of *antibodies*;  
 by lymphocytes (white blood cells);  
 antibodies join with antigens/or bacteria/or virus;  
 forming a clump;  
 This is ingested/digested; by the phagocytes/phagocytosis [4]

**Total**

**AVAILABLE  
MARKS**

6

**50**