



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
4	<p>(a) Assimilation ; All three correct = 2 marks</p> <p>Absorption ; 1 correct = 1 mark</p> <p>Egestion [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. [3]</p>		5
5	<p>(a) Destarch the plant/place in dark cupboard for period of time [1]</p> <p>(b) Blue-black/starch present [1]</p> <p>(c) Respiration/energy/cellulose/protein/fats/oils/sucrose/chlorophyll [1]</p>		3
6	<p>(a) Any two from: Same sterilisation temperature used; Same concentration of broth; Same volume of broth; Keep flasks at same temperature; Same type of broth used [2]</p> <p>(b) Bacteria caught/trapped in the swan neck/bacteria cannot enter the broth [1]</p>		3
7	<p>(a) Root hair cell [1]</p> <p>(b) Minerals/named mineral/nitrates/Ca/Mg [1]</p> <p>(c) Stoma/stomata [1]</p> <p>(d) Carbon dioxide/CO₂ [1]</p>		4

		AVAILABLE MARKS
8	(a) Respiration/energy release	[1]
	(b) Any two from: Insulin released; causes glucose to be converted to glycogen; in the liver; glucose to be converted to fat; more/increased respiration of glucose; more/increased uptake into cells	[2]
	(c) Hepatic portal vein	[1]
9	(a) Any three 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 two 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 ₂ /D has low CO ₂	[2]

<p>12 (a) Any two from: Bacteria/microorganisms <i>caught in the mucus</i>/germs/dust caught in mucus; Wafted by ciliated epithelial cells/moved by cilia/hairs; Swallowed; Killed by hydrochloric acid in stomach</p>	[2]	AVAILABLE MARKS
<p>(b) Any four from: <i>Antigens</i> on surface of microorganism; stimulate the production of <i>antibodies</i>; by lymphocytes (white blood cells); antibodies join with antigens/or bacteria/or virus; forming a clump; This is ingested/digested; by the phagocytes/phagocytosis</p>	[4]	6
Total		50