



Rewarding Learning

**General Certificate of Secondary Education
2010–2011**

Science: Double Award (Modular)

Living Organisms and the Processes of Life
End of Module Test

Foundation Tier

[GDA01]

THURSDAY 19 MAY 2011, MORNING

**MARK
SCHEME**

- 1 (a) points correctly plotted;
straight lines joining points of bars = [1] [2]
- (b) 210 – CM from their line [1]
- (c) growing more/more active [1] 4
- 2 (a) B [1]
- (b) Sphincter muscle/sphincter **not** muscle on its own [1]
- (c) Osmoregulation [1] 3
- 3 (a)

| | |
|--------------------|--|
| | Causes lung cancer |
| | Heart disease/irregular or increasing heart beat/addition not allow blood pressure |
| Carbon monoxide/CO | |

 [3]
- (b) Breathing in other peoples' smoke/**not** allow carbon dioxide/2nd hand smoke [1] 4
- 4 (a) Intercostal (muscle)/intercostal [1]
- (b) (i) Blood capillaries/capillaries **not** blood vessels [1]
- (ii) Large surface area/moist/thin/permeable/one cell thick
not allow – there are lots of them
not expand and contract [1] 3
- 5 (a) place in a dark cupboard for 24 hours/overnight
not keep away from light [1]
- (b) Carbon dioxide/CO₂ [1]
- (c) (i) Iodine solution [1]
- (ii)

| | |
|--------|---------------------|
| Leaf A | Yellow/brown/orange |
| Leaf B | Blue/black |

 [2] 5

AVAILABLE
MARKS

| | | AVAILABLE MARKS |
|----|---|-----------------|
| 6 | (a) Coronary (arteries) | [1] |
| | (b) Glucose; } either order Oxygen } | [2] |
| | (c) Any two from: Less (animal) fat in diet; less salt in diet; balanced diet; Less alcohol; Reduce stress; <i>More</i> exercise; Stop smoking. | [2] |
| 7 | (a) Root hair cell | [1] |
| | (b) Any two from: Increased surface area; for absorption; of minerals/water/or named mineral/ not nutrients | [2] |
| | (c) Cells are in the soil so cannot absorb light/below ground cells do not photosynthesis | [1] |
| 8 | (a) Cornea not conjunctiva | [1] |
| | (b) Light is bent/refracted; by the cornea/lens; Information passes along <i>optic</i> nerve (to brain) | [3] |
| 9 | (a) Biceps contracts/shortens;/tenses/tightens Triceps relaxes/extends/gets longer | [2] |
| | (b) Muscles work against each other/when one contracts, the other relaxes Tense one/other relaxed | [1] |
| 10 | (a) Antigens/proteins | [1] |
| | (b) Clump is ingested/engulf/consumed/digested by phagocytes/by white blood cells | [2] |
| | (c) Antibodies remain in the blood/memory cells made WBC retain memory/more antibodies produced quickly | [1] |

- 11 (a) E1 – Amylase
E2 – Lipase [2]
- (b) Amino acids [1]
- (c) Large surface area/villi/microvilli/thin/long **not** cilia [1]
- 12 Visking tubing bigger/bag bigger/swells/swollen/turgid/expands [1]

Any **two** from four:

water molecules pass through but not sugar molecules/sugar molecules too big to pass through/or H₂O small enough to pass through water moves into the tubing;

by osmosis;

(down the concentration (must be clear where gradient in) gradient/higher water concentration outside the Visking tubing/concentration H₂O more outside than inside

max. [2] if they have made incorrect statement ([1] for correct description, [1] for rest)

[2]

13

| | | |
|---|--------|-------------------------------------|
| A | | |
| B | Purple | |
| C | Yellow | Leaf <i>respires</i> |
| D | | Spiders <i>respire</i> /respiration |

[4]

Total

| AVAILABLE MARKS |
|-----------------|
| 4 |
| 3 |
| 4 |
| 50 |