

# Mark Scheme (RESULTS)

## January 2008

GCE

GCE Biology (6102/01)

Question Number	Answer	Mark
1	<ol style="list-style-type: none"><li>1. monocytes ;</li><li>2. antibodies / immunoglobulins ;</li><li>3. eosinophils / basophils ;</li><li>4. nucleus ;</li></ol>	4

Question Number	Answer	Mark
2 (a)	A red blood (cell) / erythrocyte ; B (alveolar) epithelial cell / epithelium / squamous epithelium / ;	2

Question Number	Answer	Mark
2 (b)	<ol style="list-style-type: none"> <li>1. {thin / eq} cells ;</li> <li>2. decreases diffusion distance ;</li> <li>3. permeable (to respiratory gases) ;</li> <li>4. (collectively) have a large surface area ;</li> <li>5. increases diffusion ;</li> <li>6. of respiratory gases / oxygen / carbon dioxide ;</li> <li>7. (surrounded by) capillaries ;</li> <li>8. idea that movement of blood maintains {diffusion / concentration} gradient ;</li> <li>9. reference to {the presence of / a description of} surfactant ;</li> </ol>	max 4

Question Number	Answer	Mark
2 (c)	8.1 (dm <sup>3</sup> ) ;	1

Question Number	Answer	Mark												
3 (a)	<table border="1"> <thead> <tr> <th>Carbohydrate</th> <th>Enzyme</th> <th>Products</th> </tr> </thead> <tbody> <tr> <td></td> <td>amylase ;</td> <td></td> </tr> <tr> <td></td> <td></td> <td>glucose and galactose ;</td> </tr> <tr> <td>sucrose ;</td> <td>sucrase ;</td> <td></td> </tr> </tbody> </table>	Carbohydrate	Enzyme	Products		amylase ;				glucose and galactose ;	sucrose ;	sucrase ;		4
	Carbohydrate	Enzyme	Products											
		amylase ;												
			glucose and galactose ;											
sucrose ;	sucrase ;													

Question Number	Answer	Mark
3 (b)	<ol style="list-style-type: none"> <li>1. reference to active uptake / active transport (of glucose) ;</li> <li>2. reference to sodium-glucose co-transport ;</li> <li>3. reference to (specific) glucose carrier proteins / fewer transport proteins for fructose / more transport proteins for glucose / fructose is absorbed by diffusion (only) ;</li> </ol>	3

Question Number	Answer	Mark
4 (a)	A aorta / aortic arch ; B (right) atrioventricular valve / tricuspid valve ;	2

Question Number	Answer	Mark
4 (b)	1. reference to <u>coronary circulation</u> ; 2. reference to coronary artery / coronary arteries ; 3. reference to capillaries (in wall of heart) ; 4. oxygen {transported / eq} by {red cells / haemoglobin} ; 5. oxygen <u>diffuses</u> out of {blood / red cells / capillaries} (to heart muscle) ;	max 3

Question Number	Answer	Mark
4 (c)	1. pacemaker / SAN sends {impulse / eq} (to atria) ; 2. {causing/ eq} atria to contract ; 3. {impulse / eq} reaches AVN ; 4. reference to delay at the AVN ; 5. idea that the impulse travels to ventricles via {bundle of His / Purkyne tissue / eq} ;	max 3

Question Number	Answer	Mark
4 (d)	1. increased {demand for / eq} {oxygen / glucose} / increased respiration ; 2. increased heart rate / heart beats faster / eq ; 3. increased stroke volume / cardiac output ; 4. increased production of carbon dioxide ; 5. reference to dilation of blood vessels in muscle ; 6. reference to adrenaline ;	max 3

Question Number	Answer	Mark
5 (a)(i)	<ol style="list-style-type: none"> <li>1. presence of gills ;</li> <li>2. to increase surface area / increase uptake of oxygen ;</li> <li>3. presence of haemoglobin / respiratory pigment ;</li> <li>4. with high affinity for oxygen ;</li> <li>5. presence of siphon / (breathing) tube / eq ;</li> <li>6. to obtain oxygen (directly) from the air ;</li> </ol> <p><b>NB paired points</b></p>	<p><b>max 4</b></p>

Question Number	Answer	Mark
5 (a)(ii)	<ol style="list-style-type: none"> <li>1. presence of claws / hooks / suckers ;</li> <li>2. to attach to substrate / eq ;</li> <li>3. {flattened / streamlined / eq} body /reference to burrowing ;</li> <li>4. less resistance to water flow / less likely to be washed away ;</li> </ol> <p><b>NB paired points</b></p>	<p><b>max 2</b></p>

Question Number	Answer	Mark
5 (b)	<ol style="list-style-type: none"> <li>1. inverse relationship / eq ;</li> <li>2. credit a manipulated quantitative comment ;</li> </ol>	<p><b>2</b></p>

Question Number	Answer	Mark
6 (a)	<ol style="list-style-type: none"> <li>1. insect ;</li> <li>2. large petals / coloured petals ;</li> <li>3. scent / nectar / nectary ;</li> <li>4. to attract insects ;</li> <li>5. correct reference to position of anthers ;</li> <li>6. correct reference to position of stigma ;</li> </ol>	<p style="text-align: right;"><b>max 3</b></p>

Question Number	Answer	Mark
6 (b)	<ol style="list-style-type: none"> <li>1. increased (from 30) to 90 minutes ;</li> <li>2. decreased from 90 (to 180) minutes ;</li> <li>3. reached a max. at 90 minutes / reached a peak at 90 minutes ;</li> <li>4. credit a manipulated quantitative comment ;</li> </ol>	<p style="text-align: right;"><b>max 3</b></p>

Question Number	Answer	Mark
7 (a)	xylem (vessel) ;	1

Question Number	Answer	Mark
7 (b)	<ol style="list-style-type: none"> <li>1. endodermal cells have Casparian strip ;</li> <li>2. reference to {suberin / eq} ;</li> <li>3. which is waterproof / eq ;</li> <li>4. stops movement of water in apoplast pathway / description ;</li> <li>5. water directed into symplast pathway / description ;</li> <li>6. reference to {control of uptake / active transport of ions (into xylem)} ;</li> </ol>	max 3

Question Number	Answer	Mark
7 (c)(i)	<ol style="list-style-type: none"> <li>1. concentration increases as temperature increases / eq ;</li> <li>2. credit a manipulated quantitative reference ;</li> </ol>	2

Question Number	Answer	Mark
7 (c)(ii)	<ol style="list-style-type: none"> <li>1. uptake is active / eq ;</li> <li>2. concentration in cells is higher than concentration in solution / converse ;</li> <li>3. ions are taken up against concentration gradient ;</li> </ol>	3



Question Number	Answer	Mark
8 (a)	E D C B A ;; NB All correct = 2 marks, 1 error (i.e. one letter out of sequence) = 1 mark	2

Question Number	Answer	Mark
8 (b)	(i) 46 ; (ii) 23 ;	2

Question Number	Answer	Mark
8 (c)	<ol style="list-style-type: none"> <li>1. {primordial (germ) cells / oogonia} divide by mitosis ;</li> <li>2. oogonia (develop to) form primary oocytes ;</li> <li>3. primary oocytes divide by meiosis I ;</li> <li>4. to form a secondary oocyte ;</li> <li>5. and a polar body ;</li> <li>6. secondary oocyte divides by meiosis II ;</li> <li>7. to form an ovum ;</li> </ol>	max 4

PAPER TOTAL: 60 MARKS