

Mark Scheme Summer 2009

GCE

GCE08 Biology (8BI01) International Supplement

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Contents

Unit	Name	page
6BI07	Practical Biology and Research Skills	1

6BI07/01
Practical Biology and Research Skills

Question Number	Answer	Mark
1(a)(i)	same {amount / volume / eq} of pigment / same surface area / number of cells on surface / eq ;	(1)

Question Number	Answer	Mark
1(a)(ii)	temperature ;	(1)

Question Number	Answer	Mark
1(a)(iii)	<p>colorimeter (or description) ;</p> <p>Then any two from</p> <ul style="list-style-type: none"> • shake before measurement • use of appropriate colour filter • zeroing against blank • clean cuvettes • wiping cuvettes • transparent side REJECT smooth side • measure absorbance / transmission • enough liquid to allow light go through ;; <p>OR</p> <p>comparison of colour ;</p> <p>Then any two from</p> <ul style="list-style-type: none"> • with {known / chart / standard} samples • comparing tubes by looking down and adding water until same and measurement is depth • convert to numerical ;; 	(3)

Question Number	Answer	Mark
1(a)(iv)	<p>Any two from:</p> <ol style="list-style-type: none"> 1. <u>volume</u> of water (in the boiling tube) ; 2. suitable method e.g. measuring cylinder, pipette / eq ; 3. reference to rinsing ; 4. until clear / for fixed time for all ; 5. similar {variety / density / eq} of beetroot ; 6. method to ensure same variety e.g. same beetroot ; 7. pre-treatment e.g. storage ; 8. detail of above ; 9. (use same) part of beetroot / eq ; 10. detail e.g. cut from middle, peeling ; 	<p>max (4)</p>

Question Number	Answer	Mark
1(b)(i)	<p>working ;</p> <p>answer (0.69) ;</p>	<p>(2)</p>

Question Number	Answer	Mark
1(b)(ii)	<ol style="list-style-type: none"> 1. axes correct (x = temperature, y = degree of redness) with appropriate scale ; 2. axes correctly labelled, with units (°C and arbitrary (or abs)) ; 3. correct plotting ; 4. suitable line of best fit / line joining points accurately ruled ; 	<p>(4)</p>

Question Number	Answer	Mark
1(b)(iii)	<p>Description</p> <ol style="list-style-type: none"> 1. 0-10/20 °C falls ; 2. 10/20 to 40 °C flat / varies little ; 3. above 40 (50) to 60 °C (steep) rise ; 4. above 60 °C falls / levels off ; <p>Explanation</p> <ol style="list-style-type: none"> 1. freezing / condensation effect at low temperature explained ; 2. correct reference to effect of temperature on membrane permeability ; 3. correct reference to effect of temperature on membrane component ; 4. {all / as much} pigment as possible gone at 60 °C / idea of high temperature destroys pigment / eq ; 	<p>sub-max (3)</p> <p>sub-max (3)</p> <p>max (5)</p>

Question Number	Answer	Mark
2(a)(i)	<p>Any two of:</p> <ol style="list-style-type: none"> 1. pre-implantation screening (of embryos) to select healthy embryos / eq ; 2. (foetal) screening, followed by abortions / eq ; 3. (adult) screening, followed by voluntary / statutory ban on marriage / reproduction, between carriers / eq ; 	<p>max (2)</p>

Question Number	Answer	Mark
2(a)(ii)	<p>Any two appropriate ethical implications;;</p> <p>For example:</p> <ul style="list-style-type: none"> • invasive procedure • elimination / disposal / storage of unused embryos / right to life • eugenics / designer babies / discrimination • who should have access • high cost <p>(false positives)</p> <ul style="list-style-type: none"> • distress - abortion not justified • distress - worry about baby / not having children when not a problem • distress - about abortion that was not needed <p>(false negatives)</p> <ul style="list-style-type: none"> • shock of diseased baby born • false confidence 	<p>(2)</p>

Question Number	Answer	Mark
2(b)(i)	<ol style="list-style-type: none"> 1. correct parental genotypes ; 2. correct gametes ; 3. Tay-Sachs genotype highlighted ; 4. any line 3 - 7 ; 5. ref to inheritance of Tay-Sachs (in Abshire) ; 	(5)

Question Number	Answer	Mark
2(b)(ii)	<ol style="list-style-type: none"> 1. axes correct and labelled with units ; 2. appropriate scale ; 3. plotting ; 	(3)

Question Number	Answer	Mark
2(b)(iii)	<p>Diagram A</p> <ol style="list-style-type: none"> 1. most people have definite opinions (few / only 2% not sure, no response % low) ; 2. the idea that {a majority / most} think somebody has a right to know / eq ; <p>Diagram B</p> <ol style="list-style-type: none"> 3. more think that medical practitioners should know than think commercial insurers should ACCEPT converse ; 4. more people are unsure / no response / eq about medical practitioners knowing than about commercial insurers ; 5. anywhere within lines 55 and 65 ; 	(5)

Question Number	Answer	Mark
2(b)(iv)	<p>Credit any two appropriate questions ;;</p> <p>For example</p> <ul style="list-style-type: none"> • what research is being done on treatments for TSD • what is gene therapy • what progress on gene therapy (in relation to named diseases) • is it available <p>internet search engine / scientific journals / magazines / reference to specialist library / reference to relevant experts / eq ;</p>	<p>(sub-max 2)</p> <p>(1)</p> <p>max (3)</p>

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