

Mark Scheme Summer 2009

GCE

GCE08 Biology (8BI01) International Supplement

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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)	colorimeter (or description) ; Then any two from • 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 ;; OR comparison of colour ; Then any two from • 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)	Any two from: 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 ;	max (4)

Question Number	Answer	Mark
1(b)(i)	working ; answer (0.69) ;	(2)

Question Number	Answer	Mark
1(b)(ii)	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 ;	(4)

Question Number	Answer	Mark
1(b)(iii)	Description 0-10/20 °C falls ; 10/20 to 40 °C flat / varies little ; - above 40 (50) to 60 °C (steep) rise ; - above 60 °C falls / levels off ; Explanation - freezing / condensation effect at low temperature explained ; - correct reference to effect of temperature on membrane permeability ; - correct reference to effect of temperature on membrane component ; {all / as much} pigment as possible gone at 60 °C / idea of high temperature destroys pigment / eq ;	sub-max (3) sub-max (3) max (5)

Question Number	Answer	Mark
2(a)(i)	Any two of: 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 ;	max (2)

Question Number	Answer	Mark
2(a)(ii)	Any two appropriate ethical implications;; For example: • invasive procedure • elimination / disposal / storage of unused embryos / right to life • eugenics / designer babies / discrimination • who should have access • high cost (false positives) • distress - abortion not justified • distress - worry about baby / not having children when not a problem • distress - about abortion that was not needed (false negatives) • shock of diseased baby born • false confidence	(2)

Question Number	Answer	Mark
2(b)(i)	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)	1. axes correct and labelled with units ; 2. appropriate scale ; 3. plotting ;	(3)

Question Number	Answer	Mark
2(b)(iii)	Diagram A 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 ; Diagram B 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)	Credit any two appropriate questions ;; For example • 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 internet search engine / scientific journals / magazines / reference to specialist library / reference to relevant experts / eq ;	(sub-max 2) (1) max (3)

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