

June 2004

GCE A LEVEL

MARK SCHEME

MAXIMUM MARK: 30

SYLLABUS/COMPONENT: 9700/05

**BIOLOGY
Paper 5 (Practical 2 (A2))**

Page 1	Mark Scheme	Syllabus	Paper
	BIOLOGY – JUNE 2004	9700	5

Question	Expected Answers	Marks	Additional Guidance
1 (a) (i)	3 from: Initially sink; Bubbles / oxygen form on (surface) of beads; Then float; No reaction in water / beads do not float;	max 3	Accept 'no reaction' Reject 'no change'
1 (a) (ii)	4 from: H ₂ O broken down; By catalase / enzyme (in yeast); Release oxygen / O ₂ ; Correct reference to density; No hydrogen peroxide / substrate in aii	max 4	
1 (b) (i) & (ii)	Spaces with six readings; Time taken to rise with units / AW in column / row heading; Means shown in table; Means correct 1.0 faster than 0.2;	1 1 1 1 1	Accept mop up spills and any procedure that stops hydrogen peroxide coming in touch with the skin or any other sensible procedure relating to safety .
1 (b) (iii)	goggles / eye protection;	1	
1 (b) (iv)	3 from: Ref to conc of hydrogen peroxide / substrate / amount of molecules: <u>Means</u> fewer molecules to collide / fewer collisions / ORA; Active sites used less often / empty more of the time / ORA; IDEA OF time taken is inverse of rate of reaction;	max 3	
1 (c)	6 from: 1 At least 5 temperatures between 100 and 0°C; 2 Means of maintaining / monitoring temperature; 3 Means of measuring volume of gas produced (e.g. gas syringe / bubbles counted etc.) OR means of measuring time. 4 In a given time interval OR time taken for bead to float; 5 constant volume / concentration of yeast; 6 constant volume / concentration of substrate; 7 Any other variable controlled and means to achieve it; 8 Repetition	max 6	
	Total	22	
2 (a)	4 from: Single continuous line for epidermis / piliferous layer; Single continuous line delineating storage from non storage tissue; Two or three concentric circles for endodermis and pericycle; Stellate conductive tissue; Labels distinguish between xylem & phloem; Proportion correct i.e. stele <1/3 of root radius; Tissue only, no cells	max 4	
(b)	Root;	1	
(c)	cell wall of conducting cell thicker than cell wall of storage cell; conducting cell empty; storage cell has starch grains;	1 1 1	If labelled wrong way round then max 2.
	Total	8	
	Paper Total	30	