

June 2004

GCE A AND AS LEVEL

MARK SCHEME

MAXIMUM MARK: 25

SYLLABUS/COMPONENT: 9700/03

**BIOLOGY
Paper 3 (Practical 1)**

Page 1	Mark Scheme	Syllabus	Paper
	BIOLOGY – JUNE 2004	9700	3

Question	Expected Answers	Mark	Additional Guidance
1 (a) (i)	S1 – potassium hydroxide and copper sulphate – lilac/mauve/purple – protein present;	1	Accept biuret Allow 1 ecf only
	S2 – hydrochloric acid / HCl; Benedict's – orange / red – non reducing / sucrose present;	1	
	S3 – Benedict's – orange / red – glucose present;	1	}Accept any colour change }after blue through to red.
		1	
1 (a) (ii)	Hydrolyse / add acid and heat; Cool; Neutralise / add sodium (hydrogen) carbonate; Volumes used / equal volumes OR > Benedicts; (Water bath) at 80°C+ / boil; for => 1 minute;	max 3	Reject less Benedicts
1 (a) (iii)	Make range of at least 3 glucose concentrations; The more the precipitate the more the glucose; Range of at least 3 colours; Green / yellow least; Orange / red most; Match colours or precipitate to the standard; May need to dilute or increase range; Use of colorimeter;	max 4	
Total		11	
2 (a)	Area of chromosomes correct relative size i.e. => ½ of cell length and width; Cell wall with 1 or 2 clear continuous close lines; Width of chromosome constant and not pinched and > width of cell wall; Two correct labels, 1 mark each;;	max 4	If not anaphase or metaphase or no / wrong label then max 2 Accept chromosome, centromere, cytoplasm, cell wall, equator or pole. Reject cell or nuclear membrane, spindle, any organelle, nucleus.
2 (b) (i)	Correct stages labelled; <i>Interphase</i> Circular area of chromatin with no visible chromosomes (blank or shaded); Chromatin labelled correctly; Nuclear membrane / envelope labelled; <i>Telophase</i> Two distinct masses of chromosomes nuclei; (mass) of chromosomes labelled; Both labelled as nucleus / daughter nuclei / membrane; Length of cell at least twice the width;	max 6	If not labelled assume first drawing interphase and second drawing telophase
2 (b) (ii)	Length of cell > telophase drawing in 2bi ; Intact <u>circular</u> nucleus; Nucleus same size as nucleus in interphase in 2bi ; Vacuole labelled or statement of comparison; Nucleus small relative to cell of 2bi interphase;	max 4	Allow all marks for correct annotation
Total		14	

Paper Total 25