MARK SCHEME for the October/November 2009 question paper

for the guidance of teachers

5090 BIOLOGY

5090/03

Paper 3 (Practical Test), maximum raw mark 40

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes must be read in conjunction with the question papers and the report on the examination.

• CIE will not enter into discussions or correspondence in connection with these mark schemes.

CIE is publishing the mark schemes for the October/November 2009 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.



UNIVERSITY of CAMBRIDGE International Examinations

Pa	Page 2		Mark Scheme: Teachers' version GCE O LEVEL – October/November 2009	Syllabus 5090	Paper 03		
	(1)						
1 (a)	.,		0 boxes reasonably filled, with units somewhere in box	(;	[1]		
	(11)	 i) table marks: all boxes numbered, correct regular sequence ; 					
			r method of 'tally', somewhere ; column grouping correct, totalling 20;		[3]		
	(iii)		uency diagram marks ; d, regular columns ;				
		<i>x</i> -ax	is labelled, 'length/mm/cm';				
			is labelled 'number (frequency)/& numbered. ('o' stated le of each column centrally stated on <i>x</i> -axis ;	d or implied);			
			urate for numbers in table ; s reversed: max 3		[5]		
					[•]		
(b)			different sizes ;				
	•		uniform conditions ; em specified ;				
	•		lium, temp, light, water, fertiliser – nutrient); ollected and) measured;				
	reco	orded licatic					
	•		conclusion suggested ;				
			me size seeds ; in different conditions ;				
	OV	Ρ;			[max 4]		
(c)	(i)		r, clean realistic selection for drawing ;				
			cle + plumule at least 5 cm (in straight line); ets/venation shown on plumule;				
			Is: radicle and plumule ; I: leaflet/venation/attachment scar or other detail ;		[5]		
		1000			[0]		
	(ii)		rly shows where measured with both dimensions clear s at least once;	,			
		corre	ect expression for calculation;				
			nification correct and realistic ;		[max 3]		
		up to	o 2 d.p. rounded up/down acceptably.				
(d)	(i)	mau	ve (etc)/ref. different from control drops ;		[1]		
	(ii)	ref.	protein presence ;		[1]		
	(iii)		growing regions/for growth;				
			s present etc ; enzyme (release here) ;		[max 2]		
					[Total: 25]		

Page 3	Mark Scheme: Teachers' version	Syllabus	Paper
	GCE O LEVEL – October/November 2009	5090	03

 2 (a) (i) chop/crush into small bits ; add <u>ethanol & shake</u> (to form solution) ; add drops of water/pour into water ;

(ii)

	observations	conclusions
W3	remains (relatively) clear no change/colourless ; R: 'negative'	no fat/oil;*
W4	goes cloudy/white/milky;	Fat/oil present ; *

(* if conclusions '-ve & +ve' allow 1)

- (b) hold piece of specimen on mounted needle/forceps ignite it ; known mass of specimen ; heat (standard volume) water in test tube ; ensure complete combustion ; record increase in temp. ; repeat for other specimen ; same volume of water ; one that burns longest ; replicate ;
 (c) each has same amount energy from starch ;
- fat (oil) content differs/**W4** has more fat/oil than **W3**; and yields energy/fat has high energy; **W4** has more energy;

[max 3]

[3]

[4]

[Total: 15]