

**CAMBRIDGE**  
INTERNATIONAL EXAMINATIONS

**June 2003**

**GCE A LEVEL**

**MARK SCHEME**

**MAXIMUM MARK: 30**

**SYLLABUS/COMPONENT: 9700/05**

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



Page 1	Mark Scheme	Syllabus	Paper
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Question	Expected Answers	Marks	Additional Guidance
1 (a) (i)	F1 does not change/ $\infty$ ;	1	
	F2 changes quickest/F3 2 <sup>nd</sup> to change;	1	
	(ii) Blue;	1	
	(iii) F1 renal vein (plasma); F2 urine; F3 renal artery (plasma);	Max 2	ENSURE ecf from (a) (i) 3 = 2    2 = 1
	1 mark for each correct explanation, i.e. F1 urea removed by kidney; F2 high concentration of urea; F3 low concentration of urea;	1 1 1	
(b)	Two from: start all three at same time; replication; means of more precise pH measurement	Max 2	
		(10)	
2 (a)	2 cells only drawn; columnar; cells tapering; brush border drawn by single line; large nuclei almost cell width; 3 correct labels from brush border; nucleus; nuclear membrane; cell membrane; cytoplasm; max 1	Max 4	3 correct labels = 1 mark
	(b) Both circular/oval/angular/NOT columnar; circular nucleus; Nucleus proportionately smaller than (a); Clear unbroken lines; 3 correct labels from: nucleus; nuclear membrane; chondrocyte; lacuna; intercellular matrix; cytoplasm; cell membrane; max 1	Max 4	3 correct labels = 1 mark

Page 2	Mark Scheme	Syllabus	Paper
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- (c) Two from:  
brush border: no brush border;  
columnar: angular or circular;  
nucleus oval: circular;  
cells side by side: cells scattered;  
no matrix: cells separated by matrix;      Max 2

(10)

- 3 (a) Three from:  
Ref to fan;  
Ref to support;  
Ref to under water;  
Ref to acclimatisation;  
Clip closed;  
Capillary tube contains water;  
Tight fit/no leaks;      Max 3

- (b) Two from:  
Light;  
Temperature;  
Humidity;      Max 2

- (c) Three from:  
Time measured;  
Scale read;  
Alter fan speed/change fan distance;  
Replication;  
Measure leaf area;  
Ref to reset apparatus qualified;  
Equilibrate if not given in (b);      Max 3

- (d)  $\pi r^2 h = 2$  marks;      1  
Or length X;      1  
Area of capillary;

(10)

**Paper Total 30**

