Cambridge O Level

Cambridge Assessment International Education
Cambridge Ordinary Level

BIOLOGY **5090/32**

Paper 3 Practical Test **October/November 2017**

MARK SCHEME

Maximum Mark: 40

Published

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Mark schemes will use these abbreviations:

;	separates marking points
/	alternatives
()	contents of brackets are not required but should be implied
R	reject
A	accept (for answers correctly cued by the question, or guidance for examiners)
Ig	ignore (for incorrect but irrelevant responses)
AW	alternative wording (where responses vary more than usual)
AVP	alternative valid point (where a greater than usual variety of responses is expected)
ORA	or reverse argument
underline	actual word underlined must be used by candidate
+	statements on both sides of the + are needed for that mark

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Question	Answer	Marks	Guidance
1(a)	result recorded for each test-tube ; distilled water blue / stays the same / no change ; 0.6% (**C**) solution at 10 minutes orange / brick red colour ; any intermediate colour between blue and orange / brick red for **A** and **B** ; solution **X** colour between **OR** the same as that of 0.2% and 0.4% solution ;	**4**	
1(b)(i)	between 0.2 and 0.4 ;	**1**	
1(b)(ii)	colour change / appearance intermediate between these two concentrations ;	**1**	
1(b)(iii)	use dilutions of glucose between 0.2% and 0.4% ; test each dilution with Benedict's solution ; compare colour of solution **X** with these colours ;	**2**	
1(c)	**EITHER** 2.5 cm^3 of glucose solution ; same volume / 2.5 cm^3 of water ; add / mix / shake / stir ; **OR** known / measured / stated volume of glucose solution ; same volume / of water ; measure 5 cm^3 of diluted solution ;	**3**	

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Question	Answer	Marks	Guidance
1(d)	control / to show the colour (of Benedict's solution) when no (reducing) sugar / glucose present ;	1	
1(e)(i)	solid / precipitate settling at bottom of test-tubes ; 0.6% solution (**C**) has most solid at bottom of test-tube ; 0.2% to 0.6% (**A** – **C**) solutions have increasing amount of solid with increasing concentration ;	2	
1(e)(ii)	filter ; residue / solid dried **+** mass measured ;	2	

Question	Answer	Marks	Guidance
2(a)(i)	at least 60 mm diameter and ± circular ; outline drawn with sharp pencil **+** continuous line **+** no shading anywhere ; vascular tissue delimited ; central vascular tissue correctly labelled ;	4	
2(a)(ii)	measurement of cut surface (mm) **+** measurement of drawing (± 1 mm) ; line drawn on drawing ; correct working for magnification ; correct calculation ;	4	

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Question	Answer	Marks	Guidance
2(b)(i)	axes fully labelled ; linear scale for vitamin C content **+** at least half of grid used in both directions ; four data values plotted correctly ; all bars ruled and of equal width ;	**4**	
2(b)(ii)	boiling / cooking decreases vitamin C **OR** more vitamin C in uncooked / fresh than boiled **ORA** ; freezing decreases vitamin C **OR** more vitamin C in fresh than frozen **ORA** ;	**2**	
2(b)(iii)	carrots of same age or type or species / same carrot ; same mass / volume of carrots used ; both cooking methods (oven, boiling) used ; same temperature / for same time / until ready to eat ; vitamin C test used / content determined after cooking ; expressed as mg per 100 g of carrot ; repeat and calculate mean / average ;	**4**	

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<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th><th>Guidance</th></tr>
<tr><td>3(a)</td><td>
<table>
<tr><td></td><td>normal</td><td>abnormal</td></tr>
<tr><td>number</td><td>6 ;</td><td>–</td></tr>
<tr><td>shape</td><td>biconcave / disc-shaped / circular ;</td><td>elongated / flat / long / pointed ;</td></tr>
<tr><td>size</td><td>small / short</td><td>large / long ;</td></tr>
</table>
</td><td>4</td><td></td></tr>
<tr><td>3(b)</td><td>abnormal cells cannot squeeze through / travel through / enter / get stuck in capillaries ;

abnormal cells can cause blockages / stop or reduces or slow blood flow / damage capillaries / cause internal bleeding / increase blood pressure ;

less oxygen transported ;</td><td>2</td><td></td></tr>
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