OCR
Oxford Cambridge and RSA

…day June 20XX–Morning/Afternoon

AS Level Biology A

H020/01 Breadth in biology

SAMPLE MARK SCHEME

Duration: 1 hour 30 minutes

MAXIMUM MARK 70

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This document consists of 12 pages

MARKING INSTRUCTIONS

PREPARATION FOR MARKING

SCORIS

1. Make sure that you have accessed and completed the relevant training packages for on-screen marking: *scoris assessor Online Training*; *OCR Essential Guide to Marking*.

2. Make sure that you have read and understood the mark scheme and the question paper for this unit. These are posted on the RM Cambridge Assessment Support Portal http://www.rm.com/support/ca

3. Log-in to scoris and mark the **required number** of practice responses ("scripts") and the **required number** of standardisation responses.

   YOU MUST MARK 10 PRACTICE AND 10 STANDARDISATION RESPONSES BEFORE YOU CAN BE APPROVED TO MARK LIVE SCRIPTS.

MARKING

1. Mark strictly to the mark scheme.

2. Marks awarded must relate directly to the marking criteria.

3. The schedule of dates is very important. It is essential that you meet the scoris 50% and 100% (traditional 50% Batch 1 and 100% Batch 2) deadlines. If you experience problems, you must contact your Team Leader (Supervisor) without delay.

4. If you are in any doubt about applying the mark scheme, consult your Team Leader by telephone, email or via the scoris messaging system.

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5. Work crossed out:

   a. where a candidate crosses out an answer and provides an alternative response, the crossed out response is not marked and gains no marks

   b. if a candidate crosses out an answer to a whole question and makes no second attempt, and if the inclusion of the answer does not cause a rubric infringement, the assessor should attempt to mark the crossed out answer and award marks appropriately.

6. Always check the pages (and additional objects if present) at the end of the response in case any answers have been continued there. If the candidate has continued an answer there then add a tick to confirm that the work has been seen.

7. There is a NR (No Response) option. Award NR (No Response)

   - if there is nothing written at all in the answer space

   - OR if there is a comment which does not in any way relate to the question (e.g. 'can't do', 'don't know')

   - OR if there is a mark (e.g. a dash, a question mark) which isn't an attempt at the question.

   Note: Award 0 marks – for an attempt that earns no credit (including copying out the question).

8. The scoris **comments box** is used by your Team Leader to explain the marking of the practice responses. Please refer to these comments when checking your practice responses. **Do not use the comments box for any other reason.**

   If you have any questions or comments for your Team Leader, use the phone, the scoris messaging system, or email.

9. Assistant Examiners will send a brief report on the performance of candidates to their Team Leader (Supervisor) via email by the end of the marking period. The report should contain notes on particular strengths displayed as well as common errors or weaknesses. Constructive criticism of the question paper/mark scheme is also appreciated.

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10**. Annotations**

Annotation	Meaning
DO NOT ALLOW	Answers which are not worthy of credit
IGNORE	Statements which are irrelevant
ALLOW	Answers that can be accepted
( )	Words which are not essential to gain credit
__	Underlined words must be present in answer to score a mark
ECF	Error carried forward
AW	Alternative wording
ORA	Or reverse argument

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11. Subject-specific Marking Instructions

INTRODUCTION

Your first task as an Examiner is to become thoroughly familiar with the material on which the examination depends. This material includes:

- the specification, especially the assessment objectives
- the question paper
- the mark scheme.

You should ensure that you have copies of these materials.

You should ensure also that you are familiar with the administrative procedures related to the marking process. These are set out in the OCR booklet **Instructions for Examiners**. If you are examining for the first time, please read carefully **Appendix 5 Introduction to Script Marking: Notes for New Examiners**.

Please ask for help or guidance whenever you need it. Your first point of contact is your Team Leader.

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Section A

Question	Answer	Marks	Guidance
1	D	1	
2	B	1	
3	A	1	
4	C	1	
5	D	1	
6	D	1	
7	D	1	
8	B	1	
9	B	1	
10	D	1	
11	B	1	
12	B	1	
13	C	1	
14	D	1	
15	B	1	
16	B	1	
17	D	1	
18	D	1	
19	C	1	
20	B	1	
	Total	**20**	

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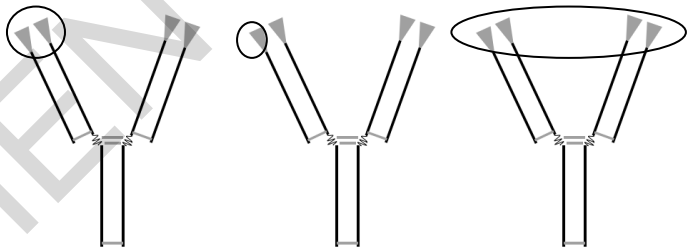
Section B

Question			Answer	Marks	Guidance
21	(a)	(i)	particles have (their own) kinetic energy ✓ (movement) down concentration gradient ✓	2	**ALLOW** glucose for particles. **ALLOW** from high(er) concentration to low(er) concentration.
		(ii)	ATP ✓	1	**ALLOW** adenosine triphosphate.
		(iii)	phospholipids act as a barrier ✓ (glucose) molecules too large ✓	2	**ALLOW** (glucose) not soluble in phospholipid bilayer because of polar –OH groups for 2 marks.
	(b)	(i)	*one from* volume of ethanol not given ✓ same onion / size of onion epidermis / position of epidermis in onion not stated ✓	1	
		(ii)	20–30% ✓ lowest concentration must be between 20 and 30% ✓	2	*idea that* 100% blue nuclei is not reached at 20% but is reached at 30%
		(iii)	*idea of* more accurate determination of permeability ✓	1	
			Total	9	

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Question			Answer	Marks	Guidance
22	(a)	(i)	1.7 mm ✓	1	
		(ii)	× 50 ✓✓	2	**ALLOW** 1 mark for correct working e.g. 80/1.6 **ALLOW** answer in the range of 48–51
		(iii)	air spaces give buoyancy ✓ supported by (surrounding) water ✓	2	
	(b)	(i)	*B* comment about detail of organelles ✓ comment about shapes of cells ✓	2	**No Mark for identification of B** e.g. light microscope would not allow nuclear pores / ribosomes / endoplasmic reticulum / plasmodesmata to be seen. e.g. sieve tube elements are angular / hexagonal.
		(ii)	the ability to, see more detail / separate two objects ✓	1	
		(iii)	Nile blue ✓ to increase contrast / to make nuclei visible / to show no nuclei in sieve tubes ✓	2	
			Total	10	

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Question			Answer	Marks	Guidance
23	(a)		enzyme–substrate complex ✓ active site ✓ tertiary ✓ induced fit ✓ activation energy ✓	5	
	(b)	(i)	ring drawn around variable region ✓	1	**ALLOW** 
		(ii)	disulfide ✓ to hold polypeptides/light chain and heavy chain together ✓	2	
	(c)	(i)	abnormal immune response ✓ against tissues normally in the body ✓	2	
		(ii)	nuclear proteins normally, hidden in nucleus / not exposed to tissue fluids ✓	1	
	(d)		plants ✓ microorganisms ✓	2	**ALLOW** named examples, e.g. St John's Wort, frog skin, *Penicillium,* etc.
			Total	13	

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Question			Answer	Marks	Guidance
24	(a)	(i)	seed dispersal ✓	1	
		(ii)	(named) economic reason ✓ (named) aesthetic reason ✓	2	
	(b)	(i)	*advantage:* exhibit natural behaviour / less likely to catch disease from humans ✓ *disadvantage:* poaching more likely / could be wiped out by disease / more difficult to count ✓	2	Must give one advantage and one disadvantage.
		(ii)	3.1 (%) ✓✓	2	**ALLOW** one mark if calculation correct but final figure incorrect e.g. (480 – 254) / 254 x 100 / 29 = **ALLOW** 3% or 3.07%
		(iii)	*three from* no evidence of causal effect ✓ the data may be inaccurate as a result of, indirect methods used / unhabituated animals hard to find ✓ annual growth rate higher after 1993 ✓ 3.2% (per year) before 1993 against 3.8% after 1993 ✓ figures may not be accurate due to collection technique ✓	3	
			Total	10	

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Question			Answer	Marks	Guidance
25	(a)	(i)	*two from* units on axes ✓ plotted points ✓ title ✓	2	
		(ii)	= 5.25 (mm min^{-1}) ✓✓	2	**ALLOW** answer in range 5.0 to 6.0 **(**mm min^{-1}) **ALLOW** one mark for correct working if final answer incorrect e.g. $\frac{21 - 0}{4}$
	(b)		evaporation ✓ from upper leaf surfaces ✓	2	
	(c)		*two from* not all lower leaf surface covered ✓ leaks in apparatus ✓ shoot not cut under water✓ error in reading position of meniscus✓	2	e.g. seal around the plant is not airtight.
			Total	8	

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