

- 6 The resolution of a microscope is limited to **half** the wavelength of light used to see the image.

Our eyes only detect light with a wavelength greater than 400 nm.

What is the approximate resolution of a light microscope?

(1000 nm = 1 μm)

A <0.2 μm

B ~0.2 μm

C ~0.4 μm

D >0.4 μm

Your answer

[1]

- 7 The photograph shows two different blood vessels.



Which statement about these blood vessels is correct?

A Blood flows through blood vessel **T** at a slower rate.

B Blood vessel **S** has a thinner muscular wall.

C Blood vessel **T** has a larger lumen diameter.

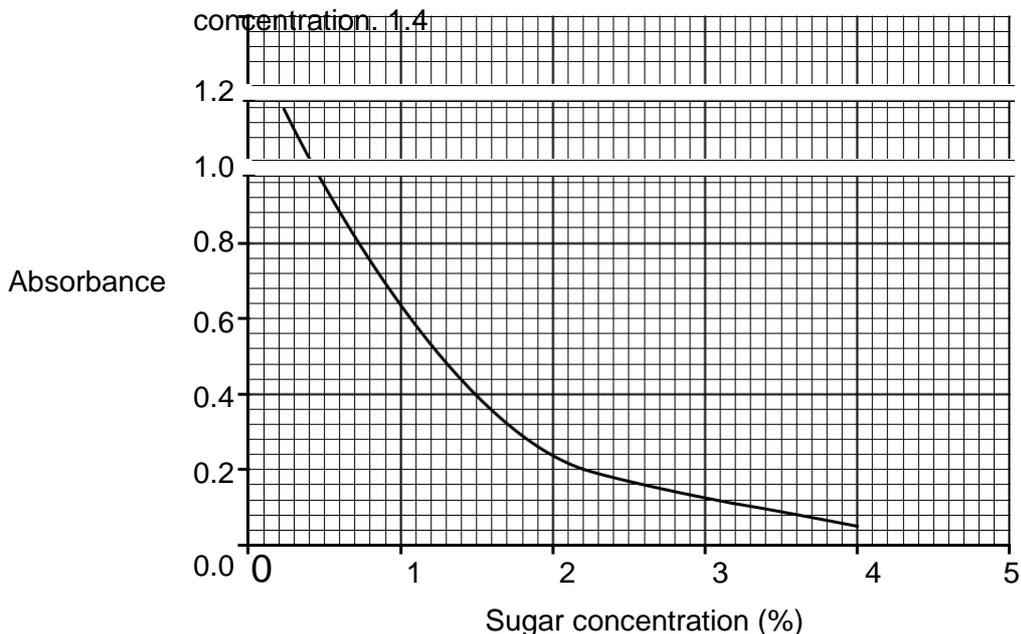
D Both blood vessels transport blood to the heart.

Your answer

[1]

(c) The amount of light absorbed by different colours can be measured.

The graph compares absorbance with the percentage of sugar



(i) The teacher investigates the light absorbed by the different coloured mixtures. They record an absorbance of 0.2 for mixture C.

Use the graph to find the sugar concentration of mixture C.

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Sugar concentration = % [1]

(ii) The answer to (i) is outside the range stated in the results table.

Suggest how the student could improve their method to find out how **precise** their measurement is for mixture C.

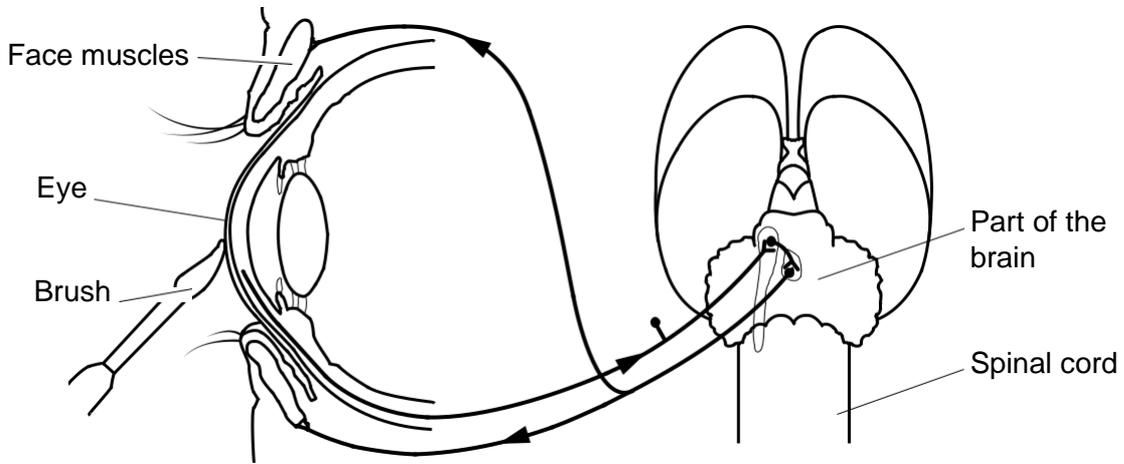
.....
..... [1]

14

(a) Doctors can test your eye reflexes by touching the eye to make you blink.

Fig. 14.1 shows the reflex arc involved in blinking.

Fig. 14.1



Explain how the components of the nervous system produce the response of blinking. Use Fig. 14.1.

.....
.....
.....
.....
.....
.....
..... [4]

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(b) The endocrine system also controls the body.

(i) Which endocrine gland releases thyroxine into the blood?

..... [1]

(ii) Describe **two** effects of adrenaline on the human body.

1
.....
2
.....

[2]

Rubric Error Responses – Optional Questions

Where candidates have a choice of question across a whole paper or a whole section and have provided more answers than required, then all responses are marked and the highest mark allowable within the rubric is given. Enter a mark for each question answered into RM assessor, which will select the highest mark from those awarded. *(The underlying assumption is that the candidate has penalised themselves by attempting more questions than necessary in the time allowed.)*

Multiple Choice Question Responses

When a multiple choice question has only a single correct response and a candidate provides two responses (even if one of these responses is correct), then no mark should be awarded (as it is not possible to determine which was the first response selected by the candidate).

When a question requires candidates to select more than one option/multiple options, then local marking arrangements need to ensure consistency of approach.

Contradictory Responses

When a candidate provides contradictory responses, then no mark should be awarded, even if one of the answers is correct.

Short Answer Questions (requiring only a list by way of a response, usually worth only one mark per response)

Where candidates are required to provide a set number of short answer responses then only the set number of responses should be marked. The response space should be marked from left to right on each line and then line by line until the required number of responses have been considered. The remaining responses should not then be marked. Examiners will have to apply judgement as to whether a 'second response' on a line is a development of the 'first response', rather than a separate, discrete response. *(The underlying assumption is that the candidate is attempting to hedge their bets and therefore getting undue benefit rather than engaging with the question and giving the most relevant/correct responses.)*

Short Answer Questions (requiring a more developed response, worth two or more marks)

If the candidates are required to provide a description of, say, three items or factors and four items or factors are provided, then mark on a similar basis – that is downwards (as it is unlikely in this situation that a candidate will provide more than one response in each section of the response space.)

Abbreviations, annotations and conventions used in the detailed Mark Scheme (to include abbreviations and subject-specific conventions).

Annotation	Meaning
/	alternative and acceptable answers for the same marking point
✓	Separates marking points
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

12. 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.

Question		Answer	Marks	AO element	Guidance
12	(a) (i)	Colour of (Benedict's) solution at the end ✓	1	2.2	<p>ALLOW final colour / colour of mixture at the end / different colour at the end / coloured precipitate</p> <p>DO NOT ALLOW the time taken for the colour to change</p>
	(ii)	<p>Hot apparatus and any sensible precaution ✓</p> <p>Or</p> <p>Liquid may spit out of tube and wear eye protection ✓</p>	1	3.1b	<p>Hazard must link to precaution</p> <p>ALLOW do not touch / wear (heatproof) gloves ALLOW use a water bath instead ALLOW flame so tie hair back ALLOW risk burning, keep Bunsen burner on safety flame when not in use ALLOW keep flammable objects away from fire/flame IGNORE hazard "Bunsen burner" / heat (needs risk of fire / burning) IGNORE precaution "put on heat proof mat" IGNORE stay away from the fire / flame</p> <p>ALLOW safety glasses / goggles / plastic or glass shield IGNORE just 'glasses' ALLOW eye irritations from chemical / Benedict's and wear goggles ALLOW point test tube away from face when heating</p> <p>IGNORE references to glassware breaking</p>