OCR
Oxford Cambridge and RSA

Accredited

GCSE (9–1) Biology A (Gateway Science) H

J247/03 Paper 3 (Higher Tier)

Sample Question Paper

Date – Morning/Afternoon

Version 2.1

Time allowed: 1 hour 45 minutes

You may use:
- a scientific or graphical calculator
- a ruler

First name									
Last name									
Centre number						Candidate number				

INSTRUCTIONS
- Use black ink. You may use an HB pencil for graphs and diagrams.
- Complete the boxes above with your name, centre number and candidate number.
- Answer **all** the questions.
- Write your answer to each question in the space provided.
- Additional paper may be used if required but you must clearly show your candidate number, centre number and question number(s).
- Do **not** write in the bar codes.

INFORMATION
- The total mark for this paper is **90**.
- The marks for each question are shown in brackets **[ ]**.
- Quality of extended response will be assessed in questions marked with an asterisk (*).
- This document consists of **24** pages.

SECTION A

Answer **all** the questions.

You should spend a maximum of 30 minutes on this section.

1 Plant shoots grow towards sunlight.

Which term describes this behaviour?

A Negative gravitropism

B Negative phototropism

C Positive gravitropism

D Positive phototropism

Your answer ☐ **[1]**

2 In DNA, which base does T (thymine) pair with?

A A

B C

C G

D T

Your answer ☐ **[1]**

3 Which molecule is **not** a polymer?

A DNA

B Lipid

C Protein

D Starch

Your answer ☐ **[1]**

4 Insulin is a protein made of 51 amino acids.

How many bases are in the length of DNA coding for insulin?

A 51

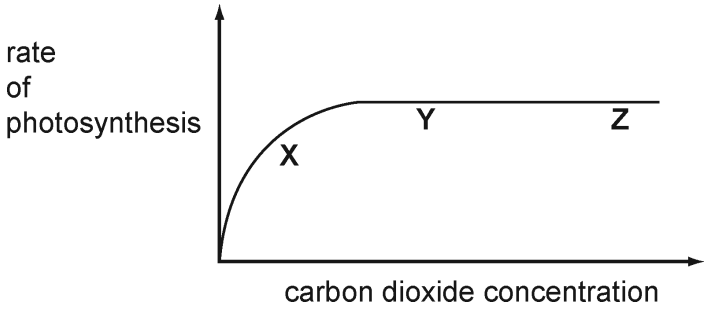
B 102

C 153

D 204

Your answer ☐ **[1]**

5 The graph shows the effect of carbon dioxide concentration on the rate of photosynthesis.



Where on the graph is carbon dioxide a limiting factor?

A **X** only

B **X** and **Y**

C **Y** and **Z**

D **Z** only

Your answer ☐ **[1]**

6 Which hormone is used to ripen fruit?

A Adrenaline

B Auxin

C Ethene

D Gibberellin

Your answer ☐ **[1]**

7 Which response reduces heat transfer from the skin?

A Shivering

B Sweating

C Vasoconstriction

D Vasodilation

Your answer ☐ **[1]**

8 Which does **not** contain DNA?

A Cell membrane

B Chromosome

C Nucleus

D Plasmid

Your answer ☐ **[1]**

9 Which part of the brain automatically controls heart rate and breathing rate?

A Cerebellum

B Cerebrum

C Hypothalamus

D Medulla

Your answer ☐ **[1]**

10 Look at the table. Which row describes active transport?

	Only occurs across a membrane	Uses ATP	Only moves substances from	
			low to high concentration	high to low concentration
A		✓		✓
B	✓	✓	✓	
C	✓		✓	
D	✓	✓		✓

Your answer ☐ **[1]**

11 How will an increase in ADH levels affect urine?

A Higher concentration of urea

B Higher volume

C Lower concentration of sodium chloride

D More dilute

Your answer ☐ **[1]**

12 Which eye defect can be overcome by using spectacles containing concave lenses?

A Colour blindness

B Eye ball too short

C Long sight

D Short sight

Your answer ☐ **[1]**

13 Which hormone is used to increase metabolic rate?

A Insulin

B Luteinising hormone

C Testosterone

D Thyroxine

Your answer ☐ **[1]**

14 The inverse square law in relation to light intensity (i) and distance (d) from the light source is shown by:

A $i \propto d^2$

B $i \propto 1/d^2$

C $i^2 \propto 1/d$

D $i^2 \propto d$

Your answer ☐ **[1]**

15 The diameter of a human egg cell is 120 μm.

What is the diameter in mm?

- 1 μm = 1×10^{-3} mm.

A 1.2×10^{-1}

B 1.2×10^{-2}

C 1.2×10^{-3}

D 1.2×10^{-4}

Your answer ☐ **[1]**

SECTION B

Answer **all** the questions.

16 The fat in milk is broken down by the enzyme lipase.
A group of students investigate the effect of temperature on this breakdown of fat.

In their investigation they use an indicator called phenolphthalein.
Phenolphthalein is pink in alkali conditions but colourless in pH values below 8.

Step 1 One student puts 5 drops of phenolphthalein and 5 ml of full fat milk into a test tube.

Step 2 She adds 1 ml of lipase and stirs the mixture.

Step 3 She measures the time for the pink indicator colour to disappear.

The other students repeat these three steps but at different temperatures.

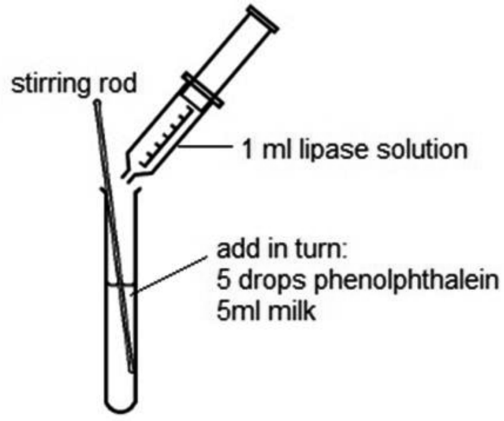


Table 16.1 shows the results of the group.

Temperature (°C)	Time for pink colour to disappear (s)
20	480
40	240
60	270
80	960

Table 16.1

(a) The pH falls as the fat in milk breaks down.

Explain why.

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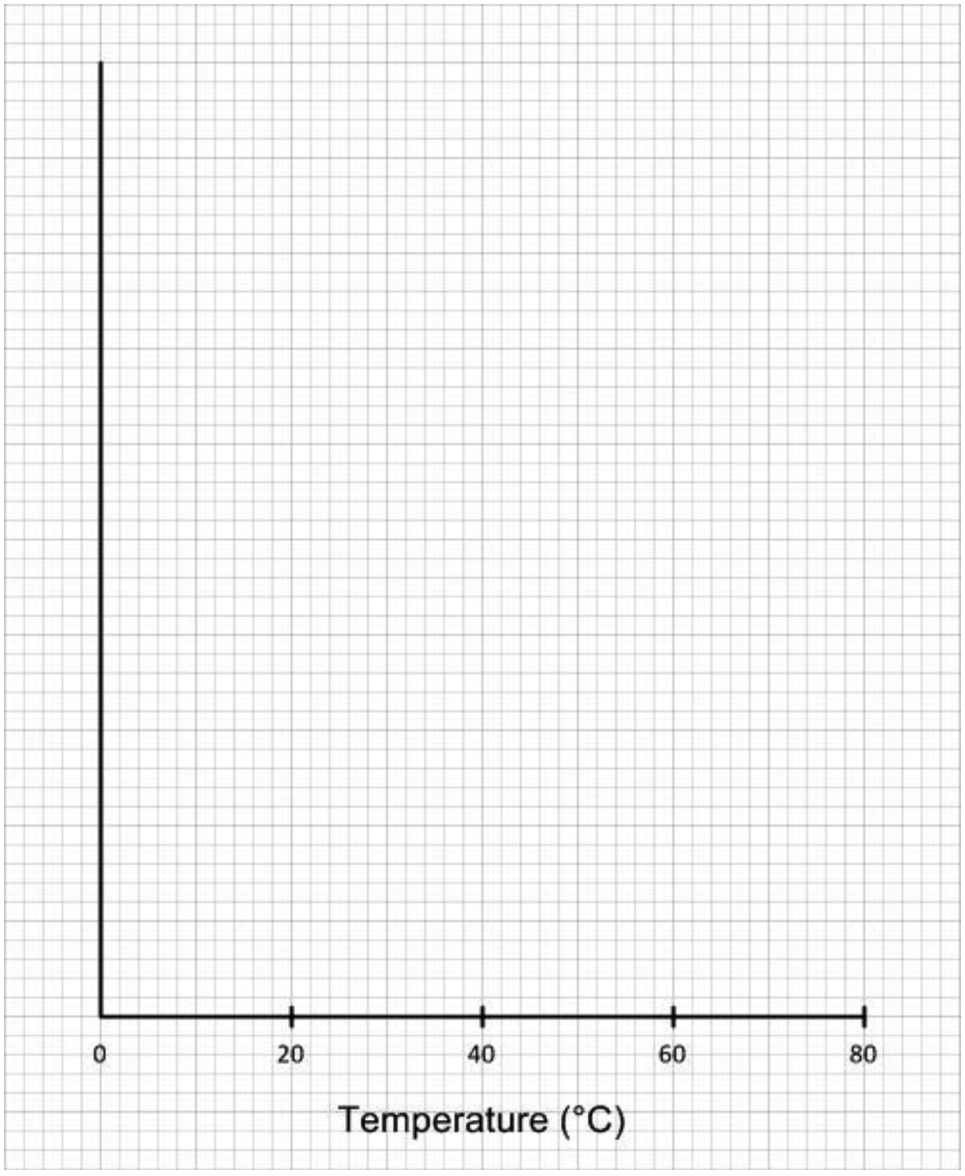
..... **[2]**

(b) Plot a graph of the results from **Table 16.1** and draw a line of best fit.



[5]

(c) Explain why the results at **20 °C** and **40 °C** are different.

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..... **[3]**

(d) Explain why the results at **40 °C** and **80 °C** are different.

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..... **[3]**

(e) **(i)** One student says that the results show that the optimum temperature for the lipase is 40°C.

The teacher says that she **cannot** say for certain that it is 40°C.

Explain why

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

(ii) Give **two** modifications that the students could make to their method to find a more accurate value for the optimum temperature.

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..... **[2]**

(f) The students rounded each time they measured to the nearest 10 seconds.

They rounded the times because they found it difficult to judge exactly when the pink colour had disappeared.

Describe and explain **two** ways the method could be improved to give a more accurate measurement.

1 .....

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2 .....

..... **[2]**

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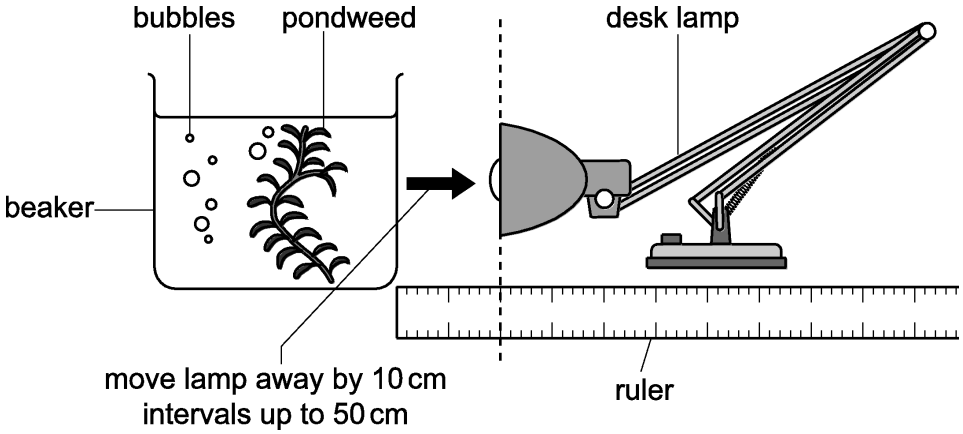
TURN OVER FOR THE NEXT QUESTION

17 A student investigates how light intensity affects the rate of photosynthesis in pondweed.

The diagram shows how he sets up his investigation.



- He places the lamp at distances of 10, 30, 50, 70 and 90 cm from the beaker.
- At each distance, he measures how much gas is given off from the pondweed in 1 minute.

(a) (i) The student counts the number of bubbles to get a measure of the amount of gas given off in photosynthesis.

Why is counting bubbles **not** an accurate way of measuring the amount of gas given off?

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..... **[2]**

(ii) The student's teacher says that collecting the gas, for example in a gas syringe, would give a more accurate measurement.

Explain why.

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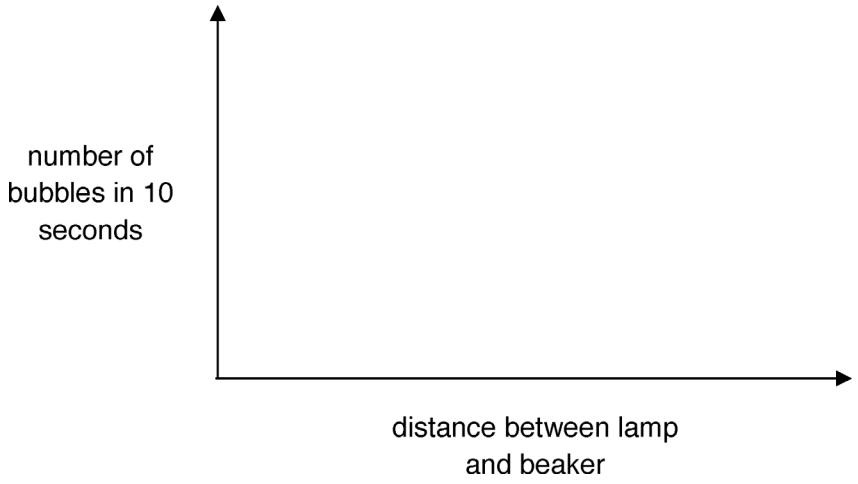
..... **[1]**

(b) (i) Sketch a line on the axes below to show the results you would expect.



[2]

(ii) Explain the shape of the graph. **Two** explanations are required.

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..... **[2]**

(c) (i) Describe how and where oxygen is produced in photosynthesis.

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..... **[3]**

(ii) Explain why the amount of oxygen gas given off is **not** a true measure of the rate of photosynthesis.

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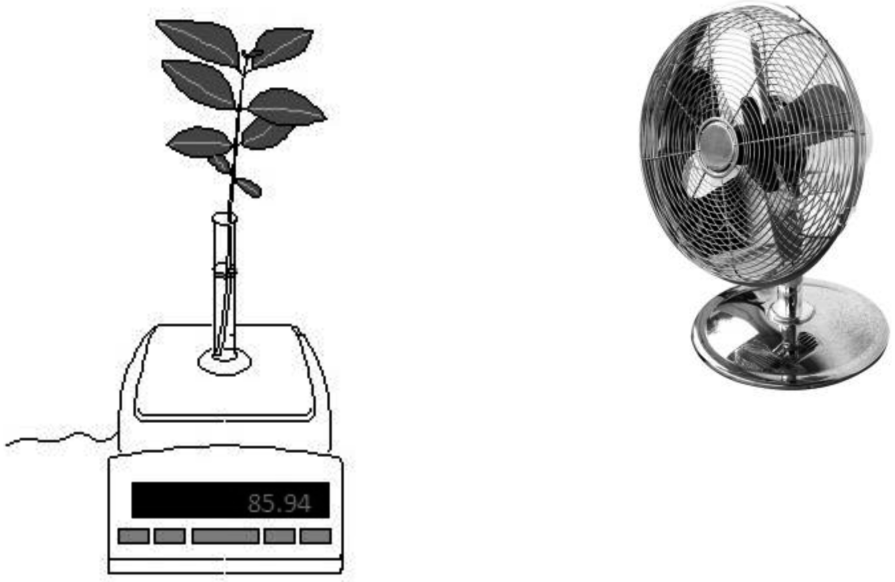
.....**[2]**

18 A student wants to investigate the effect of air movement on transpiration.

The diagram shows how she sets up her experiment.



1. She measures the rate of transpiration by measuring the loss in mass over 3 hours.

2. She does this first with the fan switched off.

3. She repeats this but with the fan switched on.

4. She keeps all other environmental conditions the same.

These are her results.

	Fan switched off	**Fan switched on**
Mass loss in 3 hour (g)	37	144

(a) Explain the difference in her results.

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..... **[2]**

(b) The student kept environmental conditions like light intensity and temperature the same.

(i) Why was it important to keep the light intensity the same?

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..... **[2]**

(ii) Why was it important to keep the temperature the same?

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

19 A boy picks up a hot plate and quickly drops it.

This is a reflex action.

(a) Describe the sequence of events that happens in his nervous system during this reflex action.

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..... **[5]**

(b) The table shows information about different types of neurons.

Type of neurone	Is myelin sheath present?	Diameter ($\times 10^{-3}$ mm)	Speed of impulse (m/s)
A	yes	13–20	80–120
B	yes	6–12	33–75
C	yes	5–8	4–24
D	yes	1–5	3–15
E	no	0.2–1.5	0.5–20

(i) Discuss the effect of diameter on the speed of impulse.

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..... **[2]**

(ii) Explain how strong a conclusion, if any, you can make from the data about the effect of the myelin sheath on the speed of impulse.

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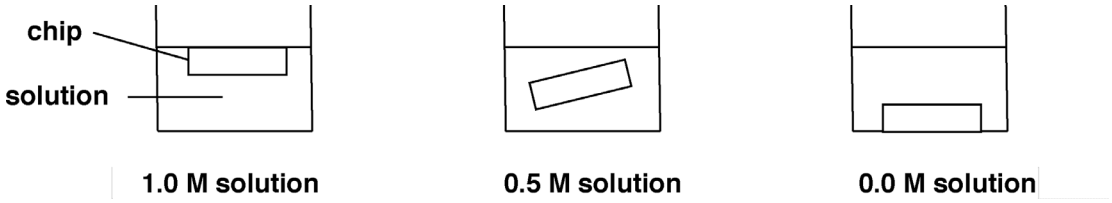
..... **[2]**

20 A student investigates how different concentrations of sucrose solutions affect potatoes.

- Three chips are cut from a potato.
- Each chip is 5.0 cm long.
- Each chip is left in a different concentration of sucrose solution for two hours.



These are the results.

Concentration of sucrose solution	Length of potato chip	
	Start (cm)	After two hours (cm)
1.0 M	5.0	4.5
0.5 M	5.0	5.0
0.0 M	5.0	5.5

(a) Explain why the length of the chip increases in the **0.0 M solution**.

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..... **[2]**

(b) Explain why the length of the chip stays the same in the **0.5 M solution**.

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..... **[2]**

(c) (i) Calculate the percentage change in the length of the chip in the **1.0 M solution**.

Answer = ... % [2]

(ii) In experiments like this, what is the advantage of calculating percentage change, rather than just the actual change?

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

(d) (i) Measuring the length of the chips is a quick and easy way to get results. However, it does **not** measure the total change to the chips.

Explain why.

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

(ii) What could the students measure to see the total change to the chips?

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

21 The graph in **Fig. 21.1** shows how the level of progesterone changes during the menstrual cycle.

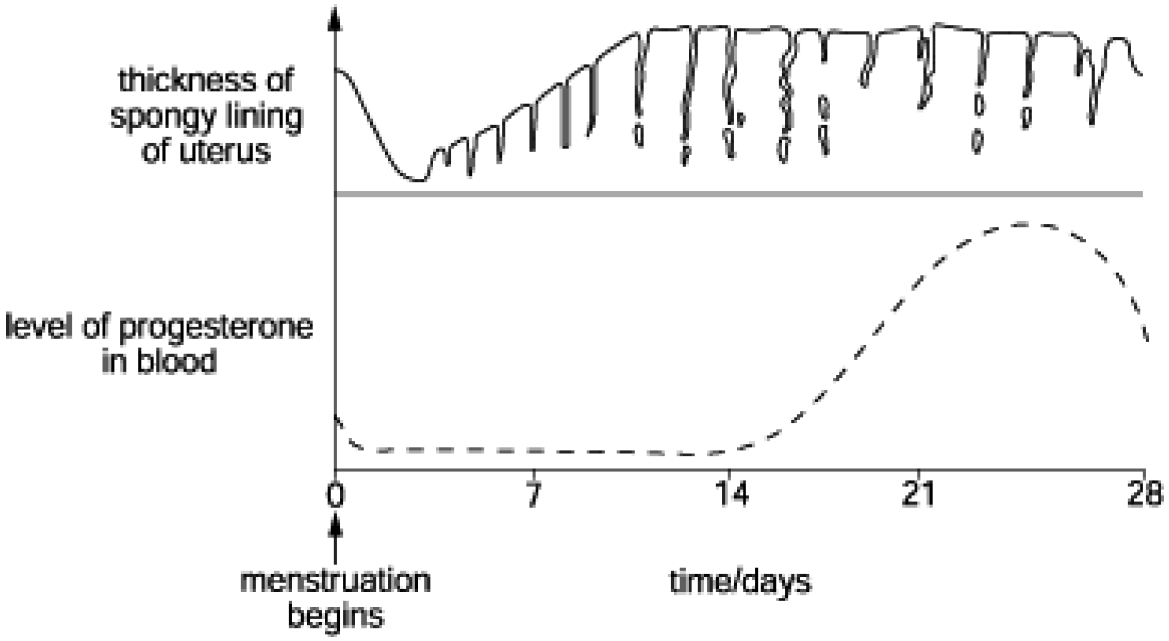

Fig. 21.1

(a) (i) Draw another line on the lower graph to show how the level of **oestrogen** changes during the menstrual cycle. **[2]**

(ii) Describe how oestrogen and FSH interact during the menstrual cycle.

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(b)* Endometriosis is a condition where the cells that normally line the uterus (womb) can move to other parts of the body.

During the menstrual cycle the cells that have moved can react in the normal way to the hormones controlling menstruation.
This can cause a number of problems including fatigue and pain.

Explain what happens to the cells that have moved and how doctors could treat the condition using sex hormones.

Use the information from the graph in **Fig. 21.1** and your own knowledge.

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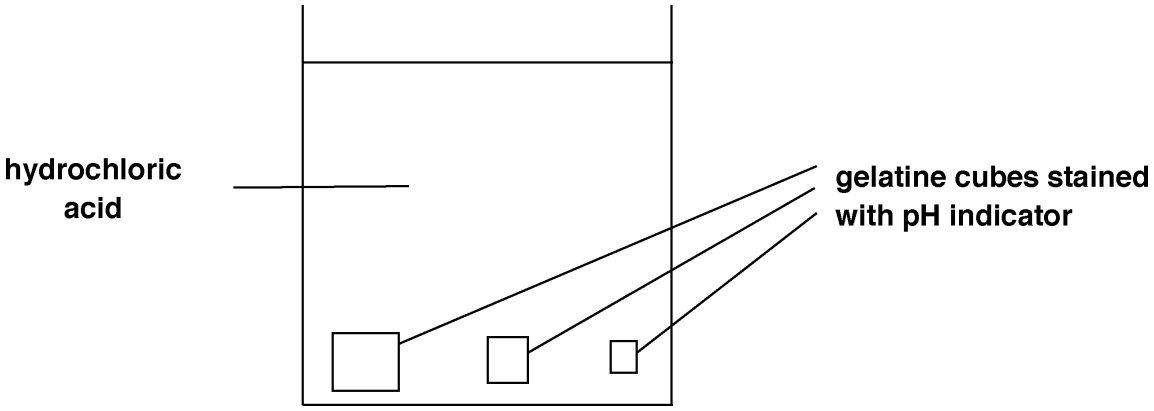
..... **[6]**

22 Some students investigate how the rate of diffusion in animal cells is affected by the surface area : volume ratio.

1. They use three different sized gelatine cubes stained blue with pH indicator.

2. They put the cubes into a beaker of hydrochloric acid.

3. They measure the time for each cube to completely change colour.



The table shows their results.

Length of one side of cube (cm)	surface area : volume ratio	Time to completely change colour (seconds)
1	.....	132
2	3:1	328
3	2:1	673

(a) (i) Calculate the surface area : volume ratio for the cube with sides of 1 cm.

answer = ... **[1]**

(ii) Calculate the rate of colour change for each of the three cubes.

- Write your answers in the table below.
- Show your answers in standard form.

Length of one side of cube (cm)	Rate of colour change (s^{-1})
1	.....
2	.....
3	.....

[2]

(iii) Use the results and your calculations in parts **(i)** and **(ii)**.

Explain why most large multi-cellular organisms need transport systems, such as the blood system, but most single celled organisms do **not**.

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..... **[2]**

(iv) Explain why using gelatine spheres instead of cubes might be more biologically accurate but suggest why the students used cubes instead.

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..... **[2]**

(b) Oxygen enters red blood cells by diffusion.

Describe and explain how red blood cells are adapted for the efficient uptake and transport of oxygen.

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..... **[5]**

END OF QUESTION PAPER

OCR
Oxford Cambridge and RSA

…day June 20XX – Morning/Afternoon

GCSE (9–1) Biology A (Gateway Science)
J247/03 Paper 3 Higher tier

SAMPLE MARK SCHEME

Duration: 1 hour 45 minutes

MAXIMUM MARK 90

This document consists of 20 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.

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.

10. For answers marked by levels of response:

Read through the whole answer from start to finish, using the Level descriptors to help you decide whether it is a strong or weak answer. The indicative scientific content in the Guidance column indicates the expected parameters for candidates' answers, but be prepared to recognise and credit unexpected approaches where they show relevance. Using a 'best-fit' approach based on the skills and science content evidenced within the answer, first decide which set of level descriptors, Level 1, Level 2 or Level 3, best describes the overall quality of the answer. Once the level is located, award the higher or lower mark:

The higher mark should be awarded where the level descriptor has been evidenced and all aspects of the communication statement (in italics) have been met.
The lower mark should be awarded where the level descriptor has been evidenced but aspects of the communication statement (in italics) are missing.

In summary:

The skills and science content determines the level.
The communication statement determines the mark within a level.

11. **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

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.

The breakdown of Assessment Objectives for GCSE (9–1) in Biology A:

	Assessment Objective
AO1	**Demonstrate knowledge and understanding of scientific ideas and scientific techniques and procedures.**
AO1.1	Demonstrate knowledge and understanding of scientific ideas.
AO1.2	Demonstrate knowledge and understanding of scientific techniques and procedures.
AO2	**Apply knowledge and understanding of scientific ideas and scientific enquiry, techniques and procedures.**
AO2.1	Apply knowledge and understanding of scientific ideas.
AO2.2	Apply knowledge and understanding of scientific enquiry, techniques and procedures.
AO3	**Analyse information and ideas to interpret and evaluate, make judgements and draw conclusions and develop and improve experimental procedures.**
AO3.1	Analyse information and ideas to interpret and evaluate.
AO3.1a	Analyse information and ideas to interpret.
AO3.1b	Analyse information and ideas to evaluate.
AO3.2	Analyse information and ideas to make judgements and draw conclusions.
AO3.2a	Analyse information and ideas to make judgements.
AO3.2b	Analyse information and ideas to draw conclusions.
AO3.3	Analyse information and ideas to develop and improve experimental procedures.
AO3.3a	Analyse information and ideas to develop experimental procedures.
AO3.3b	Analyse information and ideas to improve experimental procedures.

SECTION A

Question	Answer	Marks	AO element	Guidance
1	D	1	1.1	
2	A	1	1.1	
3	B	1	1.1	
4	C	1	2.1	
5	A	1	1.1	
6	C	1	1.2	
7	C	1	1.1	
8	A	1	1.1	
9	D	1	1.1	
10	B	1	1.1	
11	A	1	1.1	
12	D	1	1.2	
13	D	1	1.2	
14	B	1	1.1	
15	A	1	2.1	

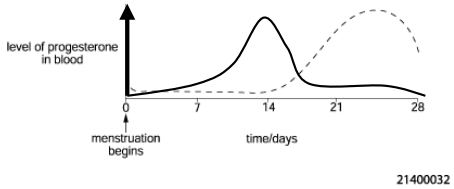
SECTION B

Question			Answer	Marks	AO element	Guidance
16	(a)		produces acids = (1) but produces fatty acids = (2)	2	2.2	
	(b)		Y axes correctly labelled, including units (1)	1	2.2	
			Y axis even scales occupying more than half of the page (1)	1	2.2	
			all points correctly plotted = (2) but at least 3 points correctly plotted = (1)	2	2 x 2.2	
			line of best fit (1)	1	2.2	
	(c)		at 20°C: slower reaction (1)	1	3.1a	**allow** reverse argument referring to 40°C
			particles moving more slowly (1)	1	2.1	
			less frequent collisions (1)	1	2.1	
	(d)		At 80°C: slower reaction (1)	1	3.1a	**allow** reverse argument referring to 40°C
			enzyme denatured (1)	1	2.1	
			shape of active site changed / cannot bind to substrate (1)	1	2.1	

Question			Answer	Marks	AO element	Guidance
	(e)	(i)	(optimum) could be either side of 40°C / could be anywhere between 40°C and 60°C (1)	1	3.1a	
		(ii)	do more repeats (1) idea of narrower intervals around 40°C (1)	1 1	3.3b 3.3b	 **allow** 30-50°C
	(f)		**any two from** use a colorimeter – so it's objective / AW (1) have the same student doing all observations – so there is a consistent judgement / AW (1) repeat the experiment at each temperature – can take mean/average (1)	2	2 x 3.3b	**allow** light meter **allow** colour chart / serial dilution
17	(a)	(i)	bubbles may be different sizes (1) may miscount / difficult to count (1)	1 1	2.2 2.2	
		(ii)	would measure total volume (1)	1	2.2	
	(b)	(i)	 line decreasing = (1) but curved line decreasing = (2)	2	2 x 2.1	
		(ii)	**any two from** as the distance increases, the light intensity decreases (1)	2	2 x 1.1	

Question			Answer	Marks	AO element	Guidance
			as the light intensity decreases, there is less light/energy for photosynthesis (1) the line curves because the light will not decrease to zero / AW (1)			
	(c)	(i)	light energy (1) splits water (1) in chloroplasts (1)	1 1 1	1.1 1.1 1.1	
		(ii)	respiration (is also occurring) (1) some oxygen is used up (in respiration) / AW (1)	1 1	2.1 2.1	 **allow** idea that oxygen given out is the net production
18	(a)		(more water/mass lost when fan is on because) air movement removes water vapour / reduces water vapour concentration outside leaves / increases water vapour concentration gradient (1) so evaporation / diffusion happens more quickly (1)	 1 1	 2.2 1.2	**allow** reverse argument
	(b)	(i)	(because otherwise) an increase in light intensity would open stomata (1) increasing transpiration / ORA (1)	1 1	2.2 2.2	
		(ii)	(because otherwise) an increase in temperature would increase evaporation / ORA (1)	1	2.2	

Question			Answer	Marks	AO element	Guidance
19	(a)		detected by receptors in skin (1)	1	2.1	to gain marks these need to be in the correct sequence
			impulse sent along sensory neurone (1)	1	1.1	
			to spinal cord / CNS (1)	1	1.1	
			impulse sent along motor neurone (1)	1	1.1	
			to (hand/arm) muscles / effectors (1)	1	2.1	**ignore** brain
	(b)	(i)	conclusion: as diameter increases so does speed of impulse (1)	1	3.2b	
			but there are exceptions e.g. all speeds for B are greater than for C even though the diameters overlap (1)	1	3.2b	must include example, but **allow** other valid examples from data
		(ii)	cannot make a (valid) conclusion (1)	1	3.2b	
			although D has lowest speeds it also has the smallest diameter (and the results might be due to this) (1)	1	3.2b	
20	(a)		absorbed water (1)	1	2.1	**allow** (movement) from higher to lower water potential / from higher to low water concentration
			higher water potential/water concentration outside ora (1)	1	3.1a	
	(b)		(potato has) same water potential / water concentration (as solution) (1)	1	3.1a	
			no (net) water loss or gain (1)	1	2.1	

Question			Answer	Marks	AO element	Guidance
	(c)	(i)	-10 (%)(2) but 10 (%) (1)	2	2 x 2.1	
		(ii)	can still compare even if original sizes are different (1)	1	2.2	
	(d)	(i)	ignores changes to width / mass (1)	1	3.3a	
		(ii)	measure (changes to) volume / mass (1)	1	3.3b	
21	(a)	(i)				before/around day 14
			line rises and falls (1)	1	1.1	
			peaks before progesterone (1)	1	1.1	
		(ii)	FSH stimulates oestrogen production (1)	1	1.1	
			oestrogen inhibits FSH production (1)	1	1.1	

	(b)*		Please refer to the marking instructions on page 4 of this mark scheme for guidance on how to mark this question. **Level 3** **(5–6 marks)** **An explanation as to how the effects of endometriosis could be relieved by treatment with progesterone** *There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.* **Level 2** **(3–4 marks)** **An explanation of the effects of the levels of oestrogen and progesterone levels and their effect on the endometrial cells outside the uterus** *There is a line of reasoning presented with some structure. The information presented is relevant and supported by some evidence.* **Level 1** **(1–2 marks)** **Draws a simple explanation of how the hormones affect the endometrial cells** *There is an attempt at a logical structure with a line of reasoning. The information is in the most part relevant.* **0 marks** *No response or no response worthy of credit.*	**6**	**2 x 1.1** **2 x 2.1** **2 x 3.1b**	**AO3.1b: Analysis of the information and evaluation of the effect of the treatment** • To stop the cells building up oestrogen levels should be kept low • Cell build up can be reduced by keeping progesterone levels high • Progesterone can be given as a (contraceptive) pill to maintain high levels of progesterone • Progesterone mimics pregnancy and halts the menstrual cycle **AO2.1: Applying knowledge of hormone levels to endometriosis/endometrial cells** • An explanation that when oestrogen levels are high the levels of progesterone are low • An explanation that the (endometrial) cells outside the uterus would build up and breakdown as normal • An explanation that during the breakdown stage the cells would not be able to leave the body in the normal way **AO1.1: Demonstrate knowledge and understanding of the female sex hormones and menstruation** • A simple explanation of the effect of oestrogen on the cells of the womb during menstruation from the graph e.g. builds up the cell lining of the uterus • A simple explanation of the effect of progesterone on the cells of the womb during menstruation from the graph e.g. maintains the cell lining of the uterus

22	**(a)**	**(i)**	6 (1)	**1**	**1.1**	
		(ii)	7.6×10^{-3} 3.0×10^{-3} 1.5×10^{-3} correct calculation of 1/time (1) answer in standard form (1)	 **1** **1**	 **1.2** **2.1**	
		(iii)	as size increases the rate of diffusion decreases / as size increases the diffusion distance increases (1) idea that would take too long for substances to diffuse in and out of large organisms (1)	**1** **1**	**3.2b** **1.1**	**ORA**
		(iv)	spheres are an improvement because animal cells tend to be round shapes not cubes (1) students used cubes because they are easier to cut/prepare (1)	**1** **1**	**2.1** **2.2**	 **allow** the calculations of surface area:volume are easier

	(b)		**any five from** small size (1) flexible (1) • to get in to small vessels/capillaries (1) biconcave disc shape (1) • large surface area:volume (1) haemoglobin (1) • to carry oxygen (1) lack of nucleus (1) • (so) more room (for haemoglobin) (1)	**5**	**5 x 1.1**	can only gain explanation marks (bullet points) if correctly linked to a feature max 4 marks if only given features without explanations

Summary of updates

Date	Version	Change
May 2018	2	We've reviewed the look and feel of our papers through text, tone, language, images and formatting. For more information please see our assessment principles in our "Exploring our question papers" brochures on our website
October 2019	2.1	Question 21(a)(i) – Mark scheme correction from oestrogen to progesterone.

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