AQA GCSE Biology | 8461

SPECIFICATION POINT 4.1.1.1

Eukaryotes and prokaryotes

Past-paper questions

Tier	**Foundation**
Question groups	**3**
Available paper years	**2010–2023**

Using this booklet

1. Answer the questions in order and show your working.
2. Original question numbers and marks are retained.
3. Print at actual size (100%) for measuring questions.
4. Use the companion answer booklet to check your work.

Name: _____ **Date:** _____

Whole questions are retained for context, so some parts assess other specification points. Current and legacy sources are labelled. Continue on extra paper if needed.

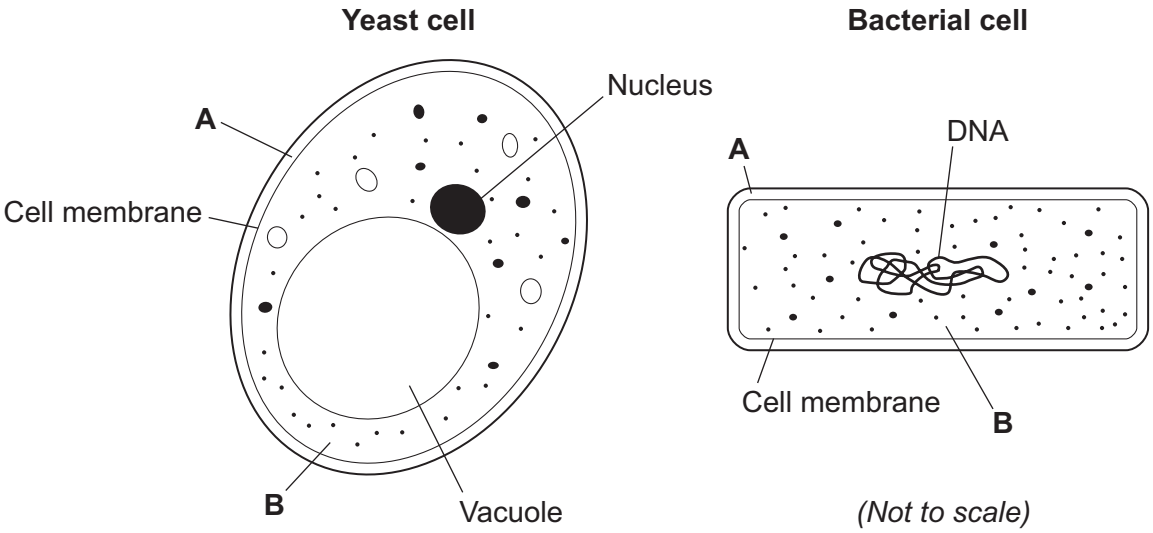
4.1.1.1 Eukaryotes and prokaryotes

Question 01

June 2010 | BLY3F | Original Q7 | Legacy

7 Sourdough bread is light in texture and tastes slightly sour. It is made using two types of microorganism, a yeast and a bacterium. The bacterium can make acids such as lactic acid. This acid makes the bread taste sour.

7 (a) The diagrams show the structures of the yeast cell and the bacterial cell.



7 (a) (i) Both the yeast cell and the bacterial cell have structures **A** and **B**.

Name structures **A** and **B**.

A .....

B .....

(2 marks)

7 (a) (ii) The yeast cell and the bacterial cell have different shapes.

Give **one** other way in which the structure of the bacterial cell is different from the structure of the yeast cell.

.....

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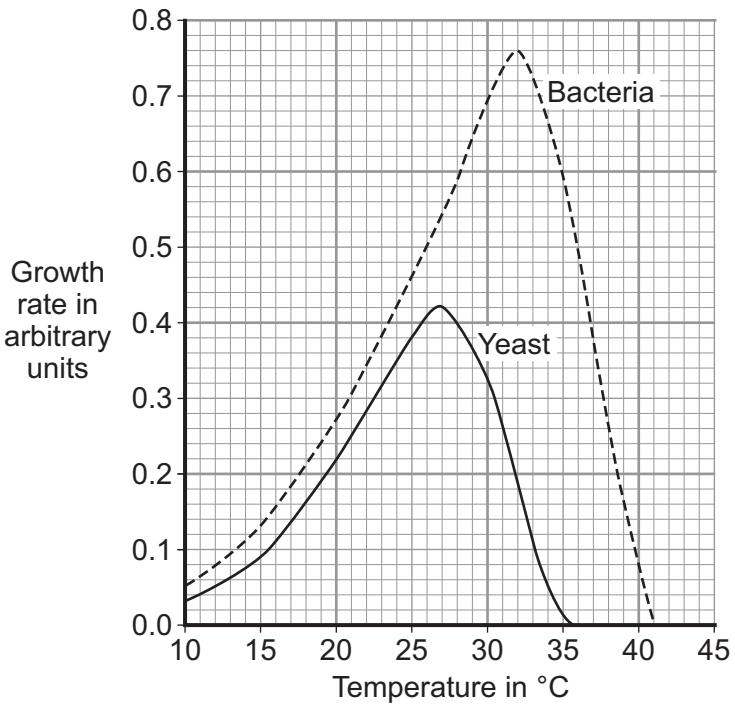
(1 mark)

Question 7 continues on the next page

4.1.1.1 Eukaryotes and prokaryotes

Question 01 · continued

7 (b) The graph shows how the growth rates of the yeast and the bacteria change with temperature.



7 (b) (i) Sourdough bread rises fastest at 27 °C.

Explain why.

.....

.....

.....

.....

(2 marks)

7 (b) (ii) The bread has a sourer taste if it rises at 32 °C.

Explain why.

.....

.....

.....

.....

(2 marks)

4.1.1.1 Eukaryotes and prokaryotes

Question 01 · continued

7 (b) (iii) The growth rate of the yeast is unaffected by pH in the range 3.5 to 7.0 pH units.

Why is this useful in the production of sourdough bread?

.....

.....

(1 mark)

8

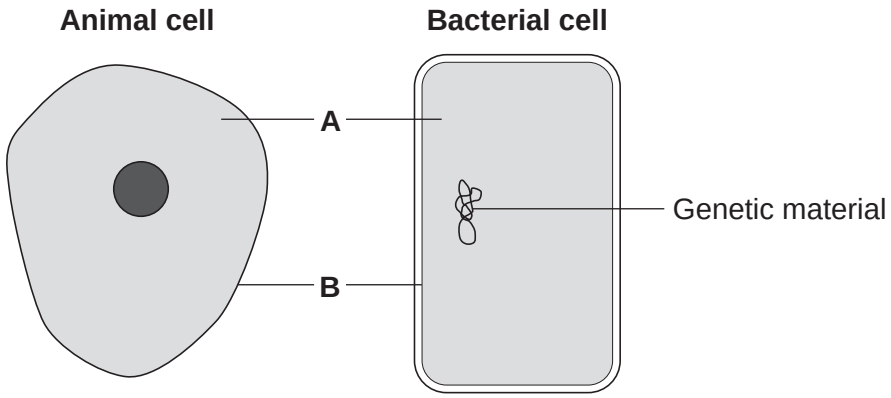
Turn over for the next question

4.1.1.1 Eukaryotes and prokaryotes

Question 02

June 2013 | BL2FP | Original Q1 | Legacy

1 The diagrams show an animal cell and a bacterial cell.



1 (a) (i) Structures **A** and **B** are found in both the animal cell and the bacterial cell.

Use words from the box to name structures **A** and **B**.

cell membrane	**chloroplast**	**cytoplasm**	**vacuole**

A .....

B .....

(2 marks)

1 (a) (ii) Both cells contain genetic material.

Name the structure in the animal cell that contains genetic material.

.....

(1 mark)

4.1.1.1 Eukaryotes and prokaryotes

Question 02 · continued

1 (b) **List A** gives three structures found in animal cells.

List B gives four functions of cell structures.

Draw **one** line from each structure in **List A** to its correct function in **List B**.

List A – Structure	List B – Function
Cell membrane	Controls what substances enter the cell
Mitochondrion	Photosynthesis
Ribosome	Protein synthesis
	Respiration

(3 marks)

6

4.1.1.1 Eukaryotes and prokaryotes

Question 03

0 4 Malaria is caused by a protist.

The protist is passed from one person to another person by mosquitos.

0 4 . 1 Which term describes the mosquito?

[1 mark]

Tick (✓) **one** box.

Bacterium ☐

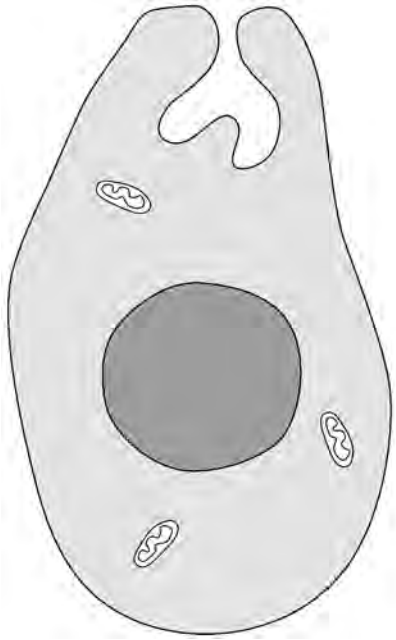
Gene ☐

Vector ☐

0 4 . 2 The malarial protist is a eukaryotic cell.

Figure 2 shows a malarial protist.

Figure 2



4.1.1.1 Eukaryotes and prokaryotes

Give **two** features of the malarial protist that show the cell is eukaryotic and **not** prokaryotic.

[2 marks]

1 _____

_____

2 _____

_____

0 4 . 3 Which organism is prokaryotic?

[1 mark]

Tick (✓) **one** box.

Cow ☐

Grass ☐

Salmonella ☐

0 4 . 4 The malarial protist reproduces asexually.

What is a feature of asexual reproduction?

[1 mark]

Tick (✓) **one** box.

Only one parent is involved. ☐

The offspring show genetic variation. ☐

Two gametes fuse. ☐

Question 4 continues on the next page

4.1.1.1 Eukaryotes and prokaryotes

Question 03 · continued

0 4 . 5 Mitosis occurs in the malarial protist during asexual reproduction.

The protist has 14 chromosomes.

How many chromosomes will each new protist cell have after mitosis?

[1 mark]

Tick (✓) **one** box.

7 ☐ 14 ☐ 21 ☐ 28 ☐

0 4 . 6 When a person has malaria, the protists destroy red blood cells.

What change would happen in the blood of a person with malaria?

[1 mark]

Tick (✓) **one** box.

Decreased antibodies ☐

Decreased haemoglobin ☐

Increased plasma ☐

Increased platelets ☐

4.1.1.1 Eukaryotes and prokaryotes

Question 03 · continued

0 4 . 7 It is estimated that 210 million people are infected with malaria every year. Half of these infected people survive the disease.

Calculate how many people would survive the disease in 3 years if the estimate is correct.

Give your answer in standard form.

[4 marks]

Number of people (in standard form) = _____

0 4 . 8 The spread of malaria can be controlled by using mosquito nets to avoid being bitten.

Describe **two** other ways that people can reduce the chance of being bitten by mosquitos.

Do **not** refer to mosquito nets in your answer.

[2 marks]

1 _____

2 _____

Question 4 continues on the next page

4.1.1.1 Eukaryotes and prokaryotes

Question 03 · continued

0 4 . 9 Different types of disease may interact.

Scientists studied how having disorder **S** interacts with malaria.

The scientists calculated the chance of children with disorder **S** getting malaria.

Table 4 shows the results.

Table 4

Age in years	Percentage (%) chance of children with disorder S getting malaria
2	70
4	65
6	50
8	45

Describe the trend shown in **Table 4**.

Use data from **Table 4**.

[2 marks]

15