

Q1. (2018)

1 Which two substances are products of **anaerobic** respiration in **yeast**?

- A Carbon dioxide and ethanol
- B Carbon dioxide and water
- C Oxygen and ethanol
- D Oxygen and water

Your answer

☐

[1]

Q2. (2018) – 19b

A)

(b) The kidney is important for water balance.

The table shows the measurements of water balance for two patients in hospital.

	Volume of water (ml)	
	Patient A	Patient B
Water taken into body in food and drinks	2500	2500
Water made in the body during respiration	200	200
Total input =	2700	2700
Water lost from kidneys in the form of urine	1900	1700
Water lost through skin, lungs and digestive system	1000	1000
Total output =		

(i) Calculate the total output for Patient A and Patient B.

Patient A

Patient B

[1]

B)

(ii) Which patient needs treatment for their kidneys?

Explain the reasons for your choice.

.....

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.....

.....

[2]

Q3. (2019)

22 Yeast cells can respire anaerobically.

(a) Complete the word equation for **anaerobic** respiration in yeast.

glucose $\longrightarrow$ + [1]

Q4. (2019) – 22b

(b) Write down **two** ways in which anaerobic respiration in yeast cells is different from anaerobic respiration in human muscle cells.

- 1
-
- 2
- [2]

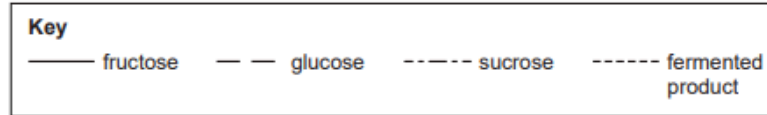
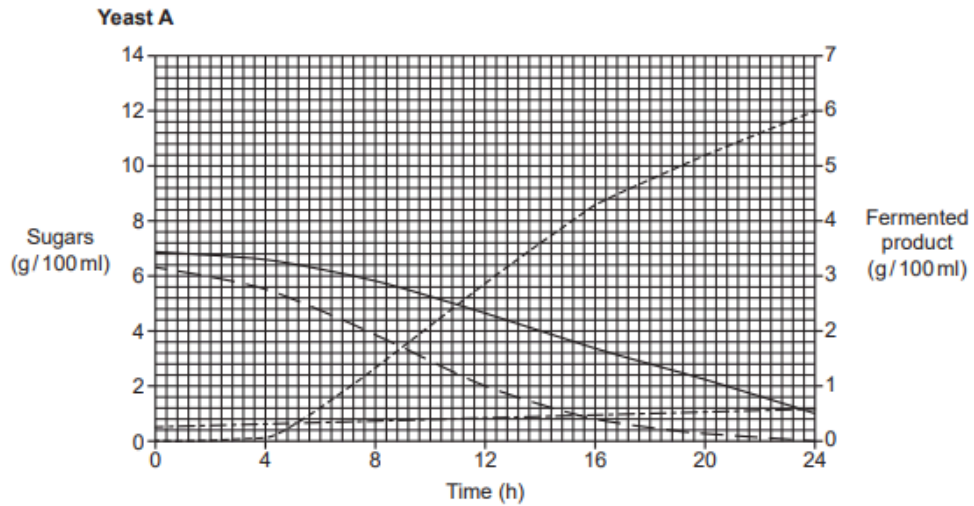
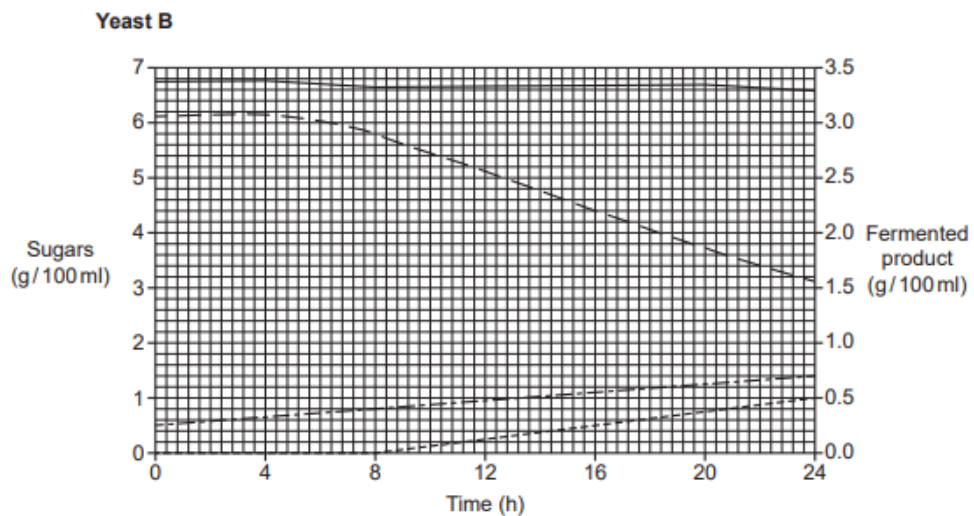
Q5. (2019) – 22c

(c) Date fruits contain three different sugars, fructose, glucose and sucrose.

Different strains of yeast can ferment different sugars to produce a fermented product.

Scientists investigate how two different strains of yeast, **A** and **B**, ferment sugars inside date fruits.

Look at their results.



A)

(i) Which sugar is **not** fermented by either strain of yeast?

Tick (✓) **one** box.

Fructose

☐

Glucose

☐

Sucrose

☐

[1]

B)

- (ii) After 24 hours, how many times higher is the fermented product yield of yeast **A** compared to yeast **B**?

Number of times higher = [2]

C)

- (iii) Which sugar would increase fermentation the **most** if added to either yeast **A** or yeast **B**?

Tick (✓) **one** box.

Fructose	☐
Glucose	☐
Sucrose	☐

[1]

D)

- (iv) Fermented dates are used to supply both fructose and fermented product.

Explain why it would be best to use yeast **B** to ferment dates to supply both fructose and fermented product.

.....

 [2]

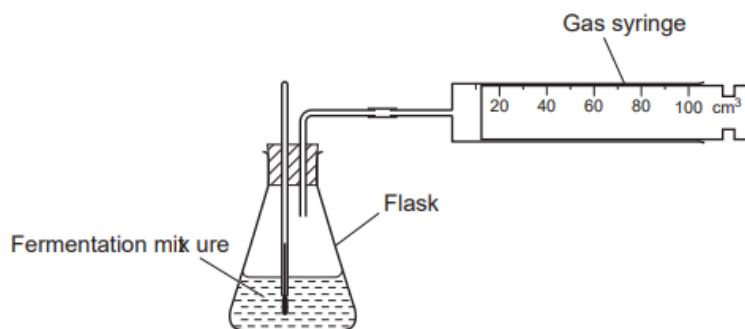
Q6. (2020)

A)

- 17 Fermentation involves enzymes breaking down sugar and releasing carbon dioxide gas.

The volume of carbon dioxide released can be used to measure how fast these enzymes are working.

A student investigates if fermentation works faster at 25°C or 30°C.
 She measures the volume of carbon dioxide released in 10 minutes.
 The diagram shows the apparatus she uses.



- (a) Using a Bunsen burner to heat a water bath is **one** way the student could keep the flask at a constant temperature.

- (i) What other way could be used to keep the flask at a constant temperature?

..... [1]

B)

- (ii) She chooses to use a Bunsen burner and water bath.

Give **one** safety precaution she should take.

..... [1]

C)

- (iii) Explain why using a Bunsen burner and water bath may introduce errors into her results.

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..... [2]

D)

- (b) The table shows the student's results.

Temperature (°C)	Volume of carbon dioxide gas released in 10 minutes (cm ³)				
	Trial 1	Trial 2	Trial 3	Mean	Range
25	23	25	22	23	22–25
30	34	29	33		29–34

- (i) Calculate the
- mean**
- for the results at 30 °C and
- complete the table**
- .

[2]

E)

- (ii) The student repeated the experiment at two more temperatures, 20 °C and 35 °C, to get enough readings to plot a line graph.

Which measurement should the student plot on the **x-axis**?

..... [1]

F)

- (iii) Describe
- one**
- way that the range would improve any conclusions made from the graph.

.....

..... [1]

G)

- (iv) The mean volume at a temperature of 20 °C was 15 cm³ and for a temperature of 35 °C it was 27 cm³.

Describe what the student's results show about the effect of temperature on enzyme activity.

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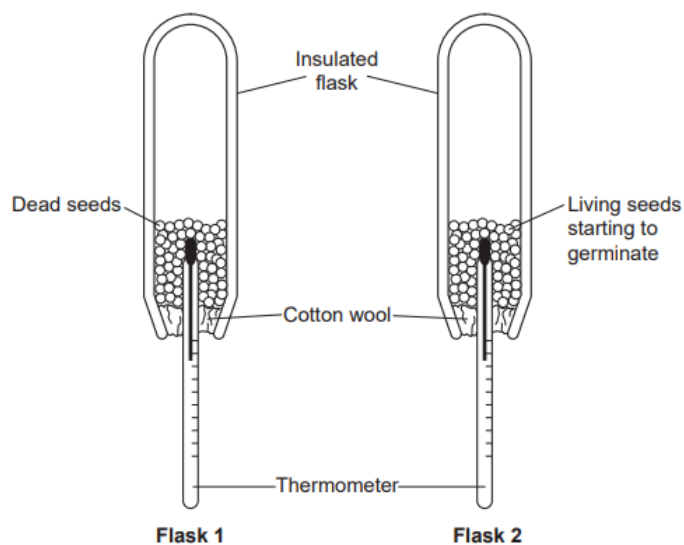
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..... [2]

Q7. (2021)

- 11 The diagram shows the apparatus used to demonstrate a biological process.



Which biological process could be demonstrated using this apparatus?

- A Digestion
- B Mitosis
- C Photosynthesis
- D Respiration

Your answer

☐

[1]

Q8. (2022)

14 Which row shows the correct type of reaction for photosynthesis and for respiration?

		Photosynthesis	Respiration
Type of Reaction	A	endothermic	endothermic
	B	exothermic	exothermic
	C	endothermic	exothermic
	D	exothermic	endothermic

Your answer

☐

[1]

Q9. (2023)

12 Bacteria can get into deep wounds in the skin and cause infection. There is little oxygen in these wounds.

How will a lack of oxygen affect the type of bacteria in these wounds?

- A Bacteria that respire using anaerobic respiration will be present.
- B Most bacteria will respire aerobically and some will respire anaerobically.
- C Only bacteria that respire using aerobic respiration will be present.
- D The bacteria will not be able to respire, so all the bacteria will die.

Your answer

☐

[1]

Q10. (2024)

11 Which reaction produces ethanol?

- A Aerobic respiration in animal cells
- B Aerobic respiration in yeast cells
- C Anaerobic respiration in animal cells
- D Anaerobic respiration in yeast cells

Your answer

☐

[1]

Q11. (2024)

17 An athlete is running a 10km race. They need to produce ATP in their cells during the race.

(c) During the race, the athlete produces a substance that causes pain in their leg muscles.

Which substance causes this pain?

Put a ring around the correct answer.

amino acid

fatty acid

hydrochloric acid

lactic acid

[1]