

Q1. (2018)

1			A ✓	1	1.1	
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Q2. (2018) – 19b

A)

	(b)	(i)	Patient A = 2900 & Patient B = 2700 ✓	1	2.2	Mark answer line first but if nothing on answer line check table for correct answer
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B)

		(ii)	(Patient A) total output of patient A is 2900/exceeds total input / patient B input matches output ✓ patient A is losing too much water (from the kidneys) ✓	2	2.1 3.2a	No marks if Patient B identified ALLOW input output is imbalanced in patient A ALLOW patient A loses more water than normal
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Q3. (2019)

22	(a)	(i)	alcohol / ethanol and carbon dioxide ✓	1	1.1	ALLOW either order ALLOW correct formulae
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Q4. (2019) – 22b

22	(b)		Any two from: alcohol produced in yeast (not humans) / ORA ✓ lactic acid produced by humans (not yeast) / ORA ✓ carbon dioxide produced by yeast (not humans) / ORA ✓	2	1.1	If any incorrect product is stated, then max 1 mark. If yeast or humans are not stated assume answer refers to yeast IGNORE reference to oxygen debt / ATP production
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Q5. (2019) – 22c

A)

22	(c)	(i)	sucrose ✓	1	3.2a	
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B)

22	(c)	(ii)	FIRST CHECK THE ANSWER ON ANSWER LINE If answer = 12 award 2 marks 6.0 ÷ 0.5 ✓ = 12 ✓	2	2.2	
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C)

22	(c)	(iii)	glucose ✓	1	3.2a	
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D)

22	(c)	(iv)	(Yeast B) doesn't ferment fructose ✓ (Yeast B) produces some fermented products ✓	2	3.1a	ALLOW (Yeast B) does not use up fructose / fructose levels decrease slightly / fructose levels remain high / higher yield of fructose / fructose levels remain constant ALLOW reverse arguments for Yeast A DO NOT ALLOW fructose is produced ALLOW fermented products increased DO NOT ALLOW fermented products produced from fructose DO NOT ALLOW produces high levels of fermented products IGNORE fermented product level stays the same / less fermented product than A
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Q6. (2020)

A)

17	(a)	(i)	electric heater ✓	1	2.2	ALLOW electric incubator / <u>electric</u> (water) bath
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B)

		(ii)	wear goggles / tie (long) hair back / secure loose clothing ✓	1	1.2	ALLOW wear gloves / use gauze under flask / use heatproof mat IGNORE face mask / do not touch hot equipment
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C)

		(iii)	Any two from: difficult to keep constant/regulate temperature ✓ uneven heating of flask creating hot/cold spots ✓ human error in reading thermometer ✓	2	2.2	ALLOW water may overheat ALLOW may become hot and denature enzyme ALLOW flask may have slightly raised temperature ALLOW temperature in water bath may not reflect temperature in the flask
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D)

	(b)	(i)	FIRST CHECK THE ANSWER ON ANSWER LINE If answer = 32 award 2 marks $34 + 29 + 33 = 96$ ✓ $96 \div 3 = 32$ ✓	2	2.2	ALLOW answer in the space under the table but answer on answer line in table takes preference ALLOW ECF for mean calculation
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E)

		(ii)	temperature ✓	1	2.1	
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F)

		(iii)	identifies variability in each point plot / gives an estimate of level of uncertainty ✓	1	1.2	ALLOW can plot range/error bars ALLOW large error bars variability is high/ORA ALLOW high variability then reliability is low/ORA ALLOW idea of the spread of data at each point and possibly identify/eliminate outlier/anomaly ALLOW ranges overlap the data at those 2 points isn't significantly different
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G)

		(iv)	Any two from: as temperature increases enzyme activity increases ✓ optimum enzyme activity between 25°C and 35°C enzyme activity ✓ but somewhere between 30°C and 35°C enzyme activity starts to decrease ✓ idea decrease in rate (after 35°C) due to denaturing ✓	2	3.1a	ALLOW idea that as temperature increases/gets higher so does rate of (enzyme) reaction / gas release / ORA ALLOW higher temperature the faster the enzyme activity ALLOW enzyme starts to denature above 30°C/between 30°C and 35°C
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Q7. (2021)

11			D✓	1	1.2	
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Q8. (2022)

14			C ✓	1	1.1	
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Q9. (2023)

12			A	1	2.1	
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Q10. (2024)

11	D	1	1.1	
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Q11. (2024)

(c)	Lactic acid ✓	1	2.1	
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