

# Anaerobic Respiration in Plants and Yeast MS

## QUESTION 1

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)	0.62 to 0.64	ignore working or lack of working correct figures from graph 8.4 and 2.2 but no answer / wrong answer gains 1 mark or wrong figures from graph subtracted and divided by 10 gains 1 mark or answer 0.61 gains 1 mark	2
b)	(oxygen for) aerobic respiration  more energy available owtte or  no / less harmful products  or no ethanol / alcohol	allow more energy produced / created /  made allow converse  ignore more efficient	1  1
Total marks			4

## QUESTION 2

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)	yeast		1
b)i)	two sensible suggestions, each linked to correct explanation: does not release CO gas is toxic / harms living organisms does not release NO <sub>x</sub> / SO <sub>2</sub>	max 4 marks  allow ethanol only releases CO <sub>2</sub> and H <sub>2</sub> O for 1 mark	1 1

	gas(es) cause acid rain / eq / harms organisms or does not cause acid rain (1) (acid rain) damages building (1) / harms organisms made from crops / not a fossil (1) fuel crops can re-grow / source is (1) renewable / fossil fuels are non-renewable	do not allow more pollution / more gases released	1  1
b)ii)	any one from <input type="checkbox"/> releases less energy (per litre) <input type="checkbox"/> need to burn more to cover same distance / travel shorter distance <input type="checkbox"/> land not being used for food crops / less food available <input type="checkbox"/> raises food prices		1
Total marks			4

### QUESTION 3

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)	prevents denaturation / change / damage of proteins / enzymes or prevents bacteria being killed / destroyed	allow protein is 'destroyed' do not allow 'bacteria denatured'  or 'protein killed'	1
b)i)	any two from: anaerobic respiration lactic (production) acid (produced)	do not allow 'bacteria are acidic' allow max 1 mark if incorrect named	2

		acid	
b)ii)	any one from: <input type="checkbox"/> thickens / clots / solidifies (milk) <input type="checkbox"/> kills other microorganisms or prevents other microbes growing <input type="checkbox"/> preserves yoghurt or prevents yoghurt going off or makes yoghurt last longer or keeps it fresh <input type="checkbox"/> reference to (improved) flavour	allow reference to germs	1
c)	reduce / prevent growth / reproduction of microorganisms or to prevent decay or to preserve it  or to keep it fresh or to prevent it becoming too sour	allow reference to germs ignore curdling	1
Total marks			5

#### QUESTION 4

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)i)	sugar / named eg / energy supply / respiration decreasing / less	allow aerobic respiration  allow running out if no other marks awarded allow less oxygen / starch / food or toxins produced for 1 mark	1  1
a)ii)	any 3 from: • starch → sugar / named eg or more  sugars	NB yeast respire faster = 2 marks	3

	<ul style="list-style-type: none"> <li>• by enzyme</li> <li>• (sugar can be used) by yeast</li> <li>• in respiration / respiration increases</li> </ul>		
Total marks			5

### QUESTION 5

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)i)	carbon dioxide		1
a)ii)	fermentation		1
b)	25		1
Total marks			3

### QUESTION 6

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)i)	to kill (other) (micro) organisms (in the milk) / to sterilise	allow germs ignore viruses  allow destroy ignore pasteurise	1
b)i	0.015	award 2 marks for correct answer irrespective of working allow answer or use of 1.5 for 1 mark allow 1 mark for $(y_1 - y_2) / 100$ but incorrect answer y-values may be incorrect or use of 6.0 and 4.5 but incorrect answer	2
b)ii)	running out of substrate / sugar / food or (acid / low pH) denatures	accept stops / slows enzymes / metabolism allow (acid / low pH) stops /	1

	enzymes / proteins / kills bacteria	slows bacteria working / growing	
c)	lactic acid	if incorrect acid allow 1 mark	2
d)i)	25		1
d)ii)	pathogens / harmful bacteria (might) grow (at 35 °C)	do not accept viruses	1
Total marks			8

### QUESTION 7

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)i)	carbohydrase	allow correct named example eg amylase / maltase	1
a)ii)	fermentation / anaerobic respiration	accept alcoholic fermentation	1
b)	any three from: <input type="checkbox"/> ethanol renewable / can be re-made or petrol non-renewable / can't be re-made <input type="checkbox"/> maize / plants / photosynthesis takes in CO <input type="checkbox"/> (ethanol) causes less increase / no increase in CO <sub>2</sub> concentration in the atmosphere or (ethanol) is carbon neutral <input type="checkbox"/> (ethanol) has less effect / no effect on climate / on global warming	accept converse for petrol ignore ethanol gives off less CO <sub>2</sub>  accept converse for petrol  accept correct reference to named pollutant / effect from petrol	3
Total marks			5

### QUESTION 8

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
i)	amount of flour / yeast / water / dough or type of flour / yeast / dough		1
ii)	35		1
Total marks			2