

Decay MS

QUESTION1

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)i)	methane	apply list principle allow symbols	1
a)ii)	anaerobic respiration / (anaerobic) fermentation	ignore decay / decomposition etc	1
b)ii)	any two from: <input type="checkbox"/> manure disposed of <input type="checkbox"/> gains fertiliser (for crops) <input type="checkbox"/> gets (free) fuel or cheap supply of energy or (free) cooking / heating / lighting <input type="checkbox"/> can sell crops at higher price	allow converse	2
b)ii)	in the UK lower temperature or not enough heat process is slower or enzymes action slower	allow converse arguments for Sri Lanka ignore other factor(s) ignore references to efficiency / 'bacteria working'	1 1
Total marks			6

QUESTION 2

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)i)	carbon dioxide and water vapour		1
b)i)	less methane because less anaerobic respiration more CO ₂ because (more) aerobic respiration		1 1 1 1

Total marks			5
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QUESTION 3

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)i)	very little of the biogas generator will be seen the temperature inside will not change much	cancel 1 mark for each extra box ticked	1 1
b)i)	methane		1
b)ii)	60	correct answer with or without working $100 - (35 + 1.5 + 1.5 + 2)$ but incorrect answer allow 1 mark	2
Total marks			5

QUESTION 4

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)	methane		1
b)	(insulation maintains) higher temperature / warm(er) / keeps heat in / prevents heat loss / optimum temperature / heat increases rate of reaction	do not allow hot(ter) / high temperature ignore same / constant temperature	1
c)i)	(\$)25 000	ignore units ignore working or lack of working add 3 figures and subtract 10 000 or use of 35 000 and 10 000 but wrong answer for 1 mark	2
c)ii)	8 years = 2 marks	ignore working or lack of	2

	or correct answer from (c)(i) = 2 marks	working 200 000/(c)i) but wrong answer = 1 mark	
Total marks			6

QUESTION 5

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)i)	methane	accept CH ₄ / CH ₄ / CH ₄ extras cancel	1
b)i	anaerobic respiration or fermentation	ignore decay / decomposition / digestion do not allow aerobic	1
c)i)	in range 32 - 33		1
c)ii)	keep cool(er) or keep below 40 (°C) or insulate from heat high(er) / optimum rate of biogas production or rate decreases at higher temperatures or works more efficiently	allow keep at optimum temperature if (c)(i) < 40 allow correct reference to rate of enzyme action eg high temperature would denature enzyme owtte	1 1
d)	increases rate / high rate insulates / keeps warm	allow 'works better' allow maintains optimum temperature	1 1
Total marks			7

QUESTION 6

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)i)	A higher concentration would be difficult to stir		1
b)i	methane		1
b)ii)	60	100 - (5 + 35) but incorrect answer allow 1 mark	2
c)i)	aerobic respiration		1
c)ii)	oxygen		1
Total marks			6