Unit 1 **Key Area 4 Revision Questions** **Mark Scheme**

1. C
2. C
3. C
4. C
5. A
6. A
7. B
8. A
9. D
10.

(a)		Degradation/breakdown	1	
(b)		1. Enzyme and substrate join/fit/bind together OR substrate joins/fits/binds with active site OR enzyme-substrate complex forms OR enzyme and substrate are complementary/specific. (1) 2. Reaction occurs at <u>active site</u> of the enzyme OR enzyme has an <u>active site</u>. (1) 3. (Two/smaller) <u>product</u>(s) made/formed/released. (1)	3	Do not award mark for point 3 if description relates to synthesis reaction.

11.

(a)		Appropriate scale and label **(1)** Scale must have 0, 108 or 120 and one other number in between Label - Time (taken) for disc(s) to return to (the) surface s/seconds Bars correctly plotted **(1)**	**2**	Not acceptable - common zero on scale Not acceptable - 'secs' as an abbreviation If incorrect scale but plot is accurate to that scale (1 mark)
(b)		Liver has the highest catalase activity/apple has the lowest catalase activity/different tissues have different catalase activity/ animal tissue has higher catalase activity (than plants) or other appropriate conclusion	**1**	Answer must relate to catalase activity/rate and be comparative Not acceptable - restatement of results
(c)		Decrease	**1**	

12.

(a)	(i)	degradation **(1)** substrate **(1)**	**2**	
	(ii)	**Prediction** - (All or some) lactose would not be removed from the milk /milk would contain lactose/it would not be lactose free **(1)** **Explanation** - Enzyme/lactase denatured **OR** enzyme/active site has changed shape/description of change of shape **(1)**	**2**	Not acceptable: might/may contain lactose/ milk will be the same/milk will be unchanged In the context of this particular question, enzyme destroyed/does not work **will be** acceptable Not acceptable: • enzyme/active site has changed • explanation including reference to above the optimum or above 37°C

(b)		Speed up (chemical/biological/biochemical) reactions/allow reactions to occur at lower temperatures/lower the activation energy	1	..unchanged in process does not negate. Not acceptable: Control reactions Can break down/build up...
(c)		Protein/amino acids	1	

13.

(a)	(i)	Hydrogen peroxide	1	Accept H_2O_2
	(ii)	Numbers (in each group) different **OR** Overall numbers used too small	1	Acceptable - use of actual numbers / comparative words such as less / more Not Acceptable - 'Amount' instead of number
	(iii)	If they have a low level of catalase/ only use sheep with low levels of catalase/ don't use sheep with high levels of catalase	1	Answer must relate level of catalase
(b)		(Activity is) decreased / Slows down reaction	1	Stop negates Not Acceptable - it wouldn't work at its best