Unit 2 Key Area 1 Metabolic Pathways Revision Mark Scheme

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

a i	Concentration of copper sulfate (solution)	1	
a ii	Same experimental set up but with (same volume of) water in place of copper sulfate / 0 moll-1 copper sulfate. OR Full description of tube contents (10cm3 hydrogen peroxide, 5cm3 water/0 moll-1 copper sulfate, paper disc soaked in catalase).	1	NOT - 'same experimental set up without copper sulfate' alone.
a iii	Water bath/incubator/oven	1	
a iv	One disc/test tube/experiment used at each concentration/solution. OR Experiment was not repeated at each concentration.	1	NOT- only done once. NOT - experiment was not repeated and average taken alone.
b i	Labels and scales correctly added. (1) Points plotted correctly and line drawn with ruler. (1)	2	If axes are transposed but points are plotted correctly award 1 mark.
b ii	150	1	

c	As the concentration of copper sulfate increased the activity of catalase decreased/inhibition of catalase increased. OR The activity of catalase decreased/inhibition of catalase increased as the concentration of copper sulfate increased.	1	NOT - as the concentration of copper sulfate increased the time for disc to rise increased.

10.

1. A competitive inhibitor binds to/blocks the active site	1	
2. Competitive inhibition is reversed/reduced by increasing substrate concentration	1	
3. Non-competitive inhibition is where a molecule binds to the enzyme not on the active site	1	Allosteric site is acceptable as an alternative to not on the active site
4. Non-competitive inhibitor changes (the shape of) the active site	1	
5. Non-competitive inhibition is irreversible/not affected by substrate concentration	1 (max 4)	