Rosary School – Marj Elhamam
Biology Quiz

No. of Pages: (5)	No. of Questions: (3)	Mark: (_____/16)
Name: _____		Date: 20/9/ 2025
Grade: 9( )		Duration: 15 min

Question one:

(i) Which structure is the site of photosynthesis?

- ☑ **A** P
- ☐ **B** Q
- ☐ **C** R
- ☐ **D** T

ii)

Which statement describes the effect of temperature on enzymes?

- **A.** High temperatures denature enzymes making it difficult for substrate molecules to fit into the active site.
- **B.** High temperatures denature enzymes making it easy for substrate molecules to fit into the active site.
- **C.** Low temperatures denature enzymes making it difficult for substrate molecules to fit into the active site.
- **D.** Low temperatures denature enzymes making it easy for substrate molecules to fit into the active site.

iii)

Which of the following correctly describes the effect of increasing temperature from 15°C to 30°C on an enzyme-controlled reaction?

	kinetic energy of enzymes and substrates	frequency of effective collisions	shape of active site
A	no change	decreases	denatured
B	increases	increases	denatured
C	increases	increases	no change
D	decreases	no change	no change

Question two:

(b) (i) Substrate X is...

- Starch; [1 mark]

Remember that starch is the substrate for the enzyme amylase.

(ii) Buffer solution is used because...

- It maintains the required pH **OR** it keeps the pH the same/controlled throughout the investigation **OR** it allows specific pH levels to be tested; [1 mark]

(iii) Two safety precautions would include...

Any **two** of the following:

- Wash hands if they come into contact with solutions / rinse solutions off skin; [1 mark]
- Wear goggles / tie hair back; [1 mark]
- Clean up spillages/breakages; [1 mark]

(c) (i) Two conclusions that could be made from the results are...

Any **two** of the following:

- Amylase activity is fastest at pH 7 **AND** slowest at pH 5; [1 mark]
- pH 7 is the (closest to) optimum; [1 mark]
- Starch is digested at all three pH levels / starch does not denature at pH 5/9; [1 mark]

Note that you cannot conclude that pH 7 *is* the optimum because the pH levels either side of pH 7 have not been tested in this experiment; the reaction time could be faster at pH 6 or 8. More tests would be needed to confirm this.

(ii) The amylase activity in the stomach would be ...

- There would be little/no amylase activity / amylase activity would be slower than at pH 5; [1 mark]

This is because...

Any **one** of the following:

- Stomach acid would denature the enzyme/amylase; [1 mark]
- The active site would change shape; [1 mark]
- Starch would no longer fit with the enzyme/active site **OR** enzyme substrate complexes would not form; [1 mark]

Question three:

a)

The table should be completed as follows...

Award 1 mark for each correct **column**:

	Product	Reactant
Oxygen	**X**	✓
Carbon dioxide	✓	**X**
Lactic acid	**X**	**X**
Glucose	**X**	✓
Water	✓	**X**
Ethanol	**X**	**X**

[Total: 2 marks]

[2]

b)

Any **three** of the following:

- Maintaining (core) body temperature / keeping warm / thermoregulation; [1 mark]
- Movement / muscle contraction / named example of muscle movement, e.g. heart beating / peristalsis; [1 mark]
- Synthesis of new molecules / chemical reactions to build large molecules (e.g proteins); [1 mark]
- Cell growth / division; [1 mark]
- Active transport / transporting molecules across cell membranes against their concentration gradient; [1 mark]
- generating/transmitting nerve impulses; [1 mark]

Accept other correct examples of energy use in animals.