

### C 1.1 Enzymes (HL) MC

- Which of the following is an example of an **intracellular enzyme-catalysed reaction**?
  - Digestion of proteins in the stomach
  - Hydrolysis of starch in the mouth
  - Glycolysis in the cytoplasm
  - Breakdown of lipids in the small intestine
- What type of enzyme activity occurs **outside the cell**?
  - Glycolysis
  - Calvin cycle
  - Krebs cycle
  - Chemical digestion in the gut
- Heat is generated during metabolic reactions because:
  - Enzymes require high heat to function
  - Metabolism stores heat as a by-product
  - Energy transfer during metabolism is not 100% efficient
  - Cells absorb heat from the environment
- Which animals depend on **heat from metabolism** to maintain a constant body temperature?
  - Amphibians and fish
  - Reptiles and insects
  - Mammals and birds
  - Invertebrates
- What best describes a **cyclical metabolic pathway**?
  - It converts energy into light
  - It breaks down substrates only once
  - It does not reuse any compounds
  - It regenerates the starting molecule
- Which of the following is a **linear metabolic pathway**?
  - Krebs cycle
  - Glycolysis
  - Calvin cycle
  - Urea cycle
- What binds to an **allosteric site** on an enzyme?
  - The substrate
  - A competitive inhibitor
  - A non-competitive inhibitor
  - A cofactor

8. Binding at the allosteric site causes:
- A. The enzyme to speed up
  - B. No change in enzyme shape
  - C. The substrate to break down
  - D. A conformational change in the enzyme
9. **Non-competitive inhibition** differs from competitive inhibition because:
- A. The inhibitor binds irreversibly to the active site
  - B. Substrate concentration cannot overcome the inhibition
  - C. The enzyme produces more products
  - D. It only affects extracellular enzymes
10. Which of the following is a **competitive inhibitor**?
- A. Penicillin
  - B. Isoleucine
  - C. Statin
  - D. NADH
11. How can **competitive inhibition** be reduced?
- A. By lowering enzyme concentration
  - B. By lowering temperature
  - C. By increasing substrate concentration
  - D. By adding more inhibitors
12. What is **feedback inhibition**?
- A. A signal from the brain that stops an enzyme
  - B. Inhibition caused by too much enzyme
  - C. Inhibition of an enzyme by the final product of its pathway
  - D. When enzymes stop working due to cold
13. Which pathway uses **feedback inhibition** involving **isoleucine**?
- A. Fatty acid breakdown
  - B. Amino acid synthesis
  - C. Glycolysis
  - D. DNA replication
14. **Mechanism-based inhibitors** work by:
- A. Reversibly binding to the active site
  - B. Blocking the enzyme's gene expression
  - C. Causing permanent changes to the active site
  - D. Diluting enzyme concentration
15. **Penicillin** is an example of a(n):
- A. Competitive inhibitor
  - B. Feedback inhibitor
  - C. Mechanism-based inhibitor
  - D. Non-specific enzyme blocker

## Answer Key

1. C
2. D
3. C
4. C
5. D
6. B
7. C
8. D
9. B
10. C
11. C
12. C
13. B
14. C
15. C