

## B2 – Enzymes Quiz

1. Name the acid produced inside the stomach and describe its function.

Hydrochloric acid; allows enzyme protease to work effectively; kills bacteria

2. Which chemical neutralises the hydrochloric acid produced inside the stomach?

Bile produced inside the liver and stored inside the gall bladder

3. How are carbohydrates digested?

Amylase breaks carbohydrates into glucose. Digestion starts in the mouth where amylase is produced by the salivary glands. Digestion is completed inside the small intestines. Amylase produced by pancreas and small intestines.

4. What are enzymes?

Biological catalysts/ proteins

5. Explain why biological washing powders can be used at low temperatures only.

At high temperatures the enzymes denature. At low temperatures the enzymes digest the fat and protein stains saving energy and reducing CO<sub>2</sub> emissions.

6. Which enzymes are produced by the pancreas?

Lipase, protease, amylase

7. What is the function of amylase, lipase and protease?

Amylase breaks down carbohydrates into glucose, protease breaks down proteins into amino acids, lipase breaks down fats into fatty acids and glycerol

8. Why do enzymes work better at higher temperatures?

Enzyme action is quicker

9. Fructose is sweeter than glucose and used in slimming foods. Explain why it is used this way.

Less fructose is needed to achieve same sweetness taste. This means less sugar and fewer calories are consumed.

10. Describe how fat is digested.

Lipase breaks down fats into fatty acids and glycerol. Lipase is produced by the pancreas. Digestion occurs in small intestines. Bile is produced by liver to neutralise stomach acid and emulsify fat to increase the surface area of fat. Fatty acids absorbed in small intestines.

11. In industry trypsin is used to pre-treat some baby foods. Why?

Trypsin makes food softer as proteins are pre-digested into amino acids

12. Give examples of enzymes in industry.

Carbohydrase to turn starch into glucose to make sugar syrup in sweets; isomerase to turn glucose into fructose for slimming foods. Glucose is cheaper than fructose; lipase to remove grease stains on clothes; trypsin to pre-digest proteins in baby foods.

13. What is the optimum temperature for amylase, lipase and protease?

37°C or body temperature

14. Why do enzymes stop working at very high temperatures and the wrong pH?

The active site changes shape and the enzyme denatures.

15. Why do enzymes stop working at very low temperatures?

The rate of reaction is too slow due to a lack in energy.

16. Some people are allergic to biological washing powders. Suggest why.

Enzymes are proteins and many people are allergic to proteins.

17. What is the disadvantage of using biological washing powders?

Bacteria are not killed at low temperatures. Some people might be allergic to proteins/enzymes.

18. Give disadvantages of using enzymes in industry.

They are easily broken down by high temperatures or the wrong pH; they are difficult to separate from water and can be discharged into rivers; expensive to buy