

## Metabolism and Enzyme

1. What term is used to describe a cellular reaction in which large molecules are broken down to smaller ones?
2. Give an example of a catabolic reaction
3. What is metabolism?
4. A catabolic reaction in an animal. E.g. ...
5. An anabolic reaction in a plant. E.g. ...
6. Is energy release a feature of anabolic or catabolic reactions?
7. To which group of molecules do enzymes belong?
8. Name an enzyme and matching substrate
9. What is an enzyme?
10. Name an enzyme that is involved in the digestion of fat
11. True or false. Immobilised enzymes can act as catalysts
12. What is a bioreactor?
13. State **one** advantage of using an immobilised enzyme in a bioreactor.
14. What is an enzyme?
15. What term best describes the shape of an enzyme?
16. Suggest a temperature at which human enzymes work best.
17. In the case of cold alcohol (ethanol) state the following:
  1. An investigation in which you used it,
  2. The precise purpose for its use in the investigation that you have indicated.
18.
  1. What is an amylase?
  2. Name a site of amylase action.
  3. What is the approximate pH value at this site?
  4. What is meant by an enzyme?
19. What is meant by immobilisation?
20. Name a substance that is used to immobilise enzymes.
21. Give **two** advantages of using immobilised enzymes.
22. Give **one** application of a named immobilised enzyme. In your answer, refer to substrate, enzyme and product.
23. Is an enzyme a lipid, a protein or a carbohydrate?
24. Where in a cell are enzymes produced?
25. Name an enzyme that turns fats to fatty acids and glycerol.

26. What is meant by an enzyme's optimum pH?
27. What is a denatured enzyme?
28. Answer the following in relation to a lipase:
  1. Where is it secreted?
  2. Where does it act?
  3. What is the approximate pH at its site of action?
29. Amylase is an enzyme that is found in saliva. State the substrate and the product of this enzyme.
30. What is a denatured enzyme?
31.
  1. Name a carbohydrate-digesting enzyme in the human alimentary canal.
  2. Where in the alimentary canal does this enzyme act?
  3. State the enzyme's product(s).
32. Name an anabolic process carried out by plants.
33. To which group of biomolecules do enzymes belong?
34. Name a factor that influences the activity of an enzyme.
35. To what group of biomolecules do enzymes belong?
36. Name the small molecules which are the building blocks for these biomolecules.
37. The action of the enzyme amylase on its substrate starch is an example of a catabolic reaction.  
Explain each of the underlined terms.
38. What is meant by immobilisation of an enzyme?
39. Describe how you immobilised an enzyme in the course of your practical work.
40. Give one advantage of bioprocessing using an immobilised enzyme.
41. Suggest one reason why enzymes are not found in body soap or shampoo.
42. What is meant by *metabolism*?
43. What is an enzyme?
44. What is meant by the *specificity* of an enzyme?
45. Explain how the Active Site Theory may be used to explain the specificity of enzymes.
46. Bioprocessing often involves the use of immobilised enzymes in a bioreactor.
  1. What does the term *immobilisation* refer to when used about enzymes?
  2. Explain the term *bioreactor*.
47. Give **one** example of the use of immobilised enzymes in bioreactors. In your answer name the enzyme, the substrate and the product.
48. Give an example of a catabolic reaction in a cell.
49. For what purpose in an experiment did you use buffer solution?

50. What is an enzyme?
51. Name any **one** enzyme, **and** its substrate, **and** its product.
52. The rate of activity of enzymes can be affected by various factors. Name any **two** factors that can affect enzyme activity.
53. Enzymes are sometimes immobilised in industrial processes. What is meant by the term *immobilised* in relation to enzymes?
54. Give one advantage of using immobilised enzymes.
55. For what purpose in an experiment did you use sodium alginate?
56. State a use for buffer solution in the biology laboratory:
57. State two different uses of a water bath in biological investigations.
58. What is meant by the term metabolism?
59. "Enzymes are essential for metabolism". Explain why this statement is true.
60. In each of the following cases state whether the process is anabolic or catabolic.
  1. Protein synthesis.
  2. Conversion of ADP to ATP.
  3. Reactions in which product molecules are larger than substrate molecules.
61. State one way by which an enzyme may be denatured.
62. Give two features of a denatured enzyme.
63. Apart from carbon, hydrogen and oxygen, there is one other element always present in the building blocks of enzymes. Name that element.