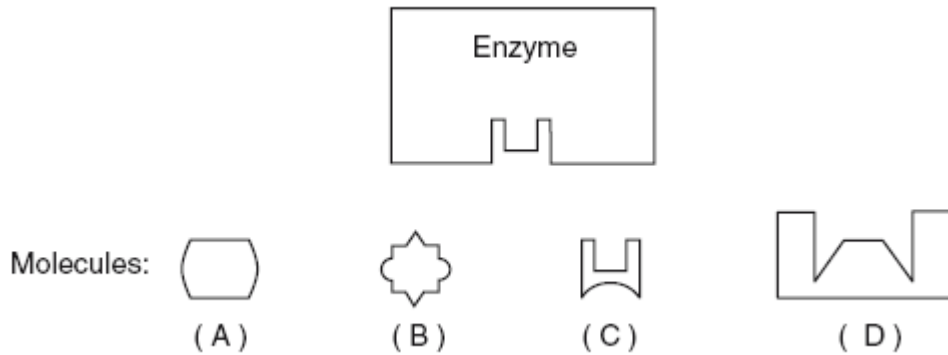


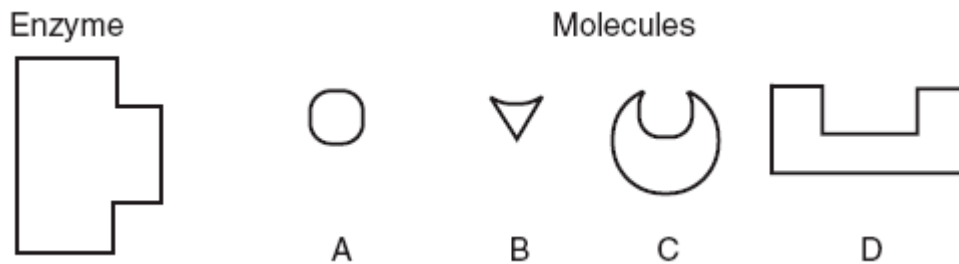
ENZYME REVIEW

1. An enzyme and four different molecules are shown in the diagram below.



The enzyme would most likely affect reactions involving

- (1) molecule A, only
 - (2) molecule C, only
 - (3) molecules B and D
 - (4) molecules A and C
2. Base your answers to questions 2 through 4 on the diagram below that represents a human enzyme and four types of molecules present in a solution in a flask.



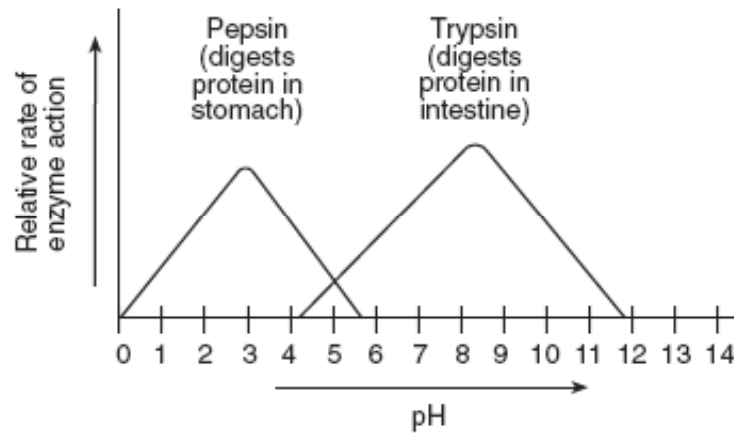
Which molecule would most likely react with the enzyme? _____

3. Explain your answer to question 2. What principle about how enzymes work does the question illustrate?

4. Match the enzymes with their substrates and functions.

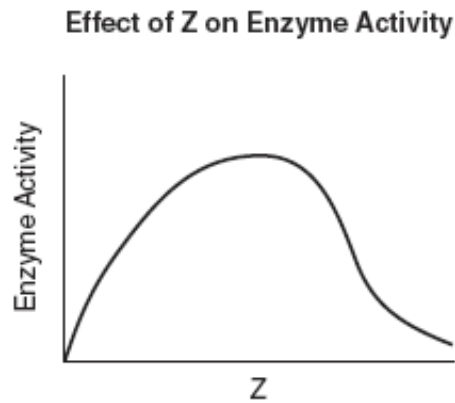
- | | |
|-------------------------|------------------------------------|
| _____ A. amylase | 1. synthesizes DNA |
| _____ B. protease | 2. digests sugar in beer (maltose) |
| _____ C. lactase | 3. digests starch (amylose) |
| _____ D. DNA polymerase | 4. synthesizes ATP |
| _____ E. maltase | 5. digests milk sugar (lactose) |
| _____ F. ATP synthase | 6. digests proteins |

5. Base your answers to the following questions on the graph below and on your knowledge of biology.



6. What is the **optimal pH** for pepsin? _____
7. Is this pH **acid** or **basic**? _____
8. In what **organ of the digestive system** does pepsin work? _____
9. What is the **optimal pH** for trypsin? _____
10. In what **organ of the digestive system** does trypsin work? _____
11. Is this pH **acid** or **basic**? _____
12. Neither enzyme works at a pHs of _____

13. An incomplete graph is shown below. What **two** internal body conditions could appropriately be used to replace letter Z on the axis?



14. What kind of organic molecule is an enzyme? _____

15. List 2 internal environmental factors that affect how well enzymes function.

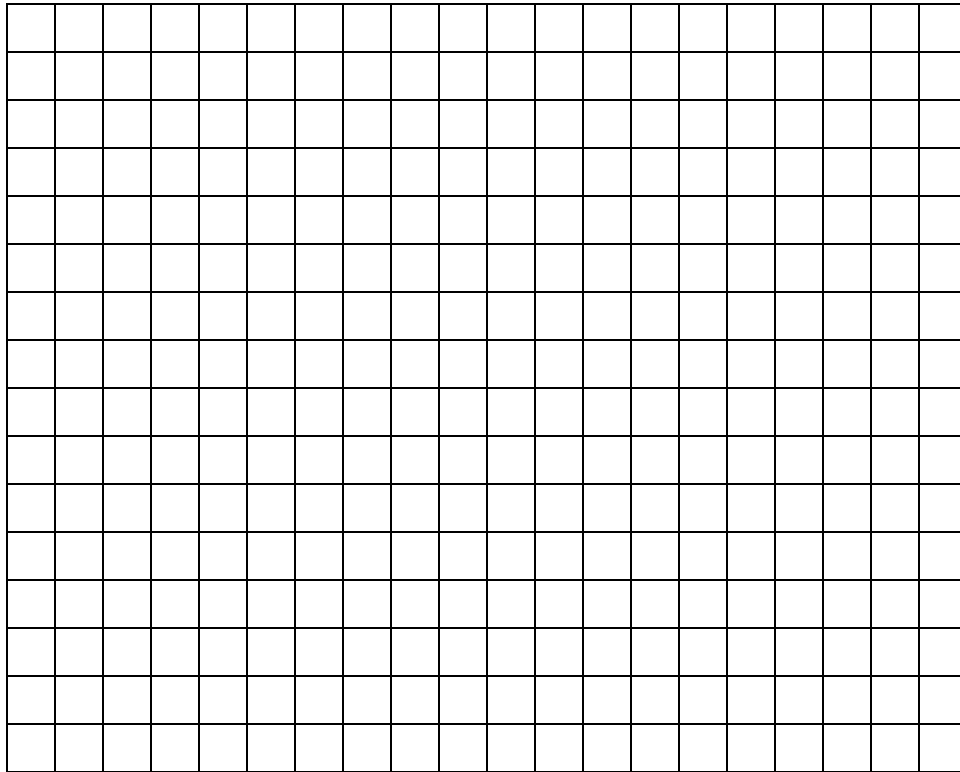
16. What happens to water when you heat it to 100°C?

17. What happens to proteins dissolved in that water when you heat it to 100°C?

18. What specific change happens to an enzyme that stops it from working when you heat it?

19. Explain why changing the shape of an enzyme could affect the ability of the enzyme to function.

20. Draw a generalized graph of the action of an **enzyme from the human body** as the temperature changes from 0°C to 100°C. Mark the temperature of **optimal enzyme activity**.



21. What most likely happens to the rate of reaction of a human enzyme when the temperature is increased gradually from 10°C to 30°C. Explain your answer.

22. What most likely happens to the rate of reaction of a human enzyme when the temperature is increased gradually from 40°C to 90°C. Explain your answer.

23. What is the optimal temperature for the functionality of a human enzyme? _____