

# 2

Exam of biology book (first 10 pages of Pearson's book) pages:6-12

The equivalent of biology in the 10th year of high school in Iran  
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1-Please fill in the blanks in the sentences below.

- a) The chemical reactions that take place in a cell are controlled by a group of ..... called enzymes.
- b) Enzymes are ..... catalysts.
- c) Cells contain ..... of different enzymes, each catalysing a different reaction.
- d) genes → ..... (.....) → catalyse reactions
- e) Everything a cell does depends on which ..... it can make. which in turn depends on which .....in its nucleus are working.
- f) Enzymes being involved in digestion of food. In the intestine. enzymes are secreted onto the food to break it down. These are called ..... , which means they function 'outside cells.'
- g) ..... is the release of a fluid or substances from a cell or tissue.
- h) It is possible for there to be thousands of different sorts of enzymes because they are ....., and ..... molecules have an enormous range of structures and shapes.
- i) The molecule that an enzyme acts on is called its ..... Each enzyme has a small area on its surface called the .....
- j) In the intestine enzymes are secreted onto the food to break it down. These are called .....enzymes.
- k) ..... means the 'best' temperature, in other words the temperature at which the reaction takes place most rapidly.
- l) ..... that always live at an average temperature of 10 °C will probably have enzymes with an optimum temperature near 10 °C
- m) Either side of the optimum, the pH affects the structure of the enzyme molecule and changes the shape of its ....., so that the substrate will not fit into it so well
- n) .....is a digestive enzyme that breaks down starch into the sugar .....

o) Most enzymes stop working at a low pH, but the stomach makes an enzyme called ..... which has an optimum pH of about .....

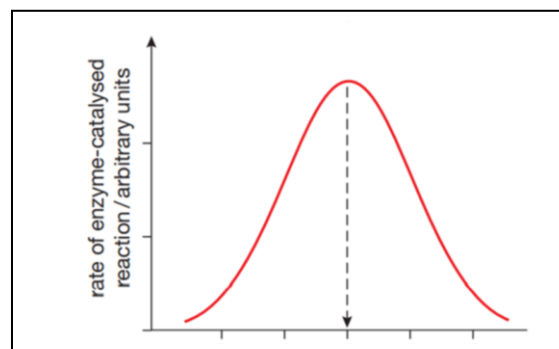
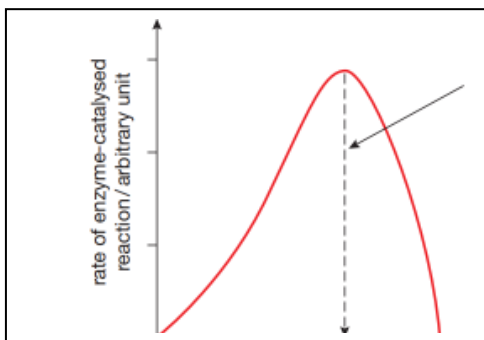
2- Determine which of the following sentences is true and which is false.

- a) Most enzymes stay inside cells and carry out their function there.
- b) An enzyme will only catalyse one reaction.
- c) Enzymes in the human body have evolved to work best at body temperature (37 °C).
- d) Enzymes have evolved to work best at the normal body temperature of the organism
- e) Not all enzymes have an optimum temperature near 37 °C
- f) Most rabbit and pigeon enzymes have optimum activity at 37 °C.
- g) Most enzymes work best at a neutral pH, a few have an optimum below or above pH 7.

4- What factors affect the activity of enzymes? 1-..... 2..... 3..... 4.....

5- A sea snake lives in water with a temperature of 15 degrees Celsius, what is the optimum temperature for the activity of this snake's enzymes?

6- Which graph is related to the effect of pH and which is related to the effect of temperature on the activity of enzymes.



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good luck