

CSEC HUMAN & SOCIAL BIOLOGY

Homework Assignment

Section B: Nutrition

1) a) Complete the table below:

Nutrient	Main Sources	Function	Deficiency Disease
iron			
	Cod liver oil, carrots, spinach		
			scurvy
		Needed for the absorption of calcium	

(12 marks)

b) Calculate the BMI of a man who is 1.86m tall and weighs 105kg. Show the formula used. Based on a BMI chart, is the man underweight, normal weight, overweight or obese? (2 marks)

2 a) Make a labeled drawing of a tooth showing its structure and layers. (5 marks)

b) Outline the major ways to take care of your teeth including nutrients necessary for strong healthy teeth. (4 marks)

c) Discuss the consequences of poor dental care. Include an explanation of how a person may develop a toothache. (3 marks)

3. Enzymes are biological compounds which speed up the rate of chemical reactions.

- (a) (i) Give the names of TWO enzymes associated with digestion in humans, and state ONE function of EACH enzyme named.

Enzyme _____

Function _____

Enzyme _____

Function _____

(4 marks)

- (ii) The breakdown of food takes place in the mouth, stomach and small intestine. Name the type of digestion for which the teeth in the mouth are responsible.

(1 mark)

- (iii) Humans have four types of teeth. State which type of tooth is MAINLY responsible for the digestion named in (a)(ii) above.

(1 mark)

- (b) Both temperature and pH affect the manner in which enzymes function. Figures 2 and 3 are graphs showing the rate of reaction of amylase over a range of temperatures and pH.

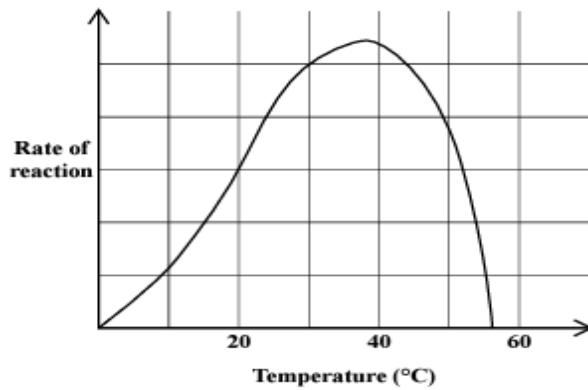


Figure 2. Rate of reaction of amylase over a range of temperatures

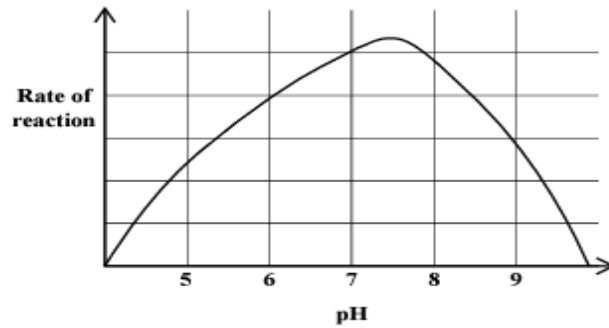


Figure 3. Rate of reaction of amylase at different pH levels

- (i) At approximately which temperature and pH does amylase function the BEST?

Temperature _____

pH _____

(2 marks)

- (ii) Suggest what effect temperatures GREATER than 55 °C would have on enzymes.

(1 mark)

4) (a) Figure 4 shows a diagram of the human alimentary canal.

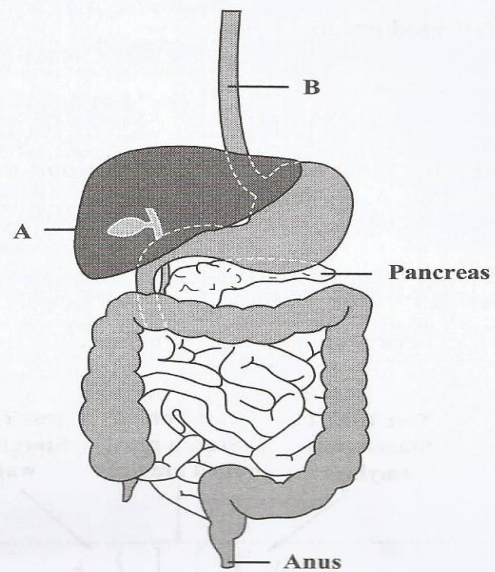


Figure 4. Diagram of the human alimentary canal

Name the structures labelled A and B in Figure 4, and state ONE function of EACH structure.

A

Function of A

B

Function of B

(4 marks)

(b) A pancreas becomes diseased and stops producing pancreatic juice.

(i) Name ONE food group whose digestion would be affected.

.....
(1 mark)

(ii) State ONE effect that a deficiency of the **food group** named in (i) above would have on the human body.

.....
(1 mark)

(c) Figure 5 shows an experiment used to demonstrate the digestion of starch by amylase.

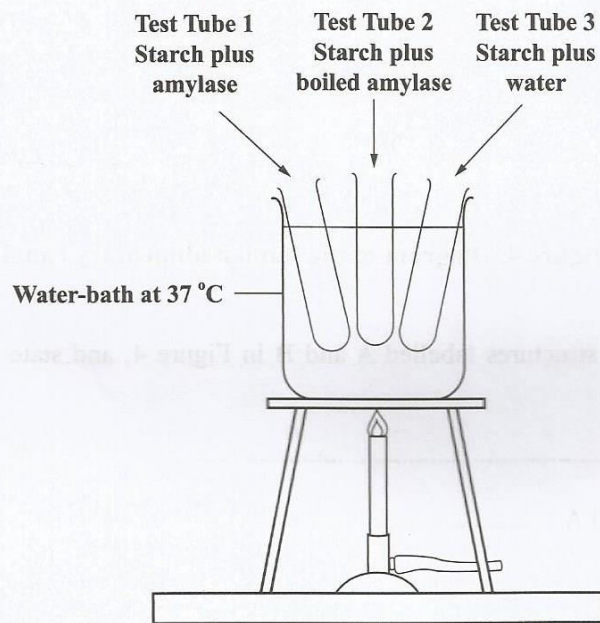


Figure 5. Experiment to demonstrate the digestion of starch by amylase

(i) In which of the three test tubes would the starch be digested?

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(1 mark)

(ii) Explain why starch would NOT be digested in the other two test tubes.

.....
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.....
.....

(4 marks)

(d) Veera does not chew her food properly before swallowing it.

(i) Explain why Veera's way of briefly chewing her food is bad for the digestion of the food.

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.....

(3 marks)

(ii) In which region of the digestive system would the final stage of the digestion of starches occur?

.....

(1 mark)

Total 15 marks

TOTAL MARKS: 50