2. 2018 Summer Zone 1 Paper 4 Question 1

(a) The reactions of chemical digestion are catalysed by enzymes.

Fig. 1.1 shows the stages of an enzyme-catalysed reaction.

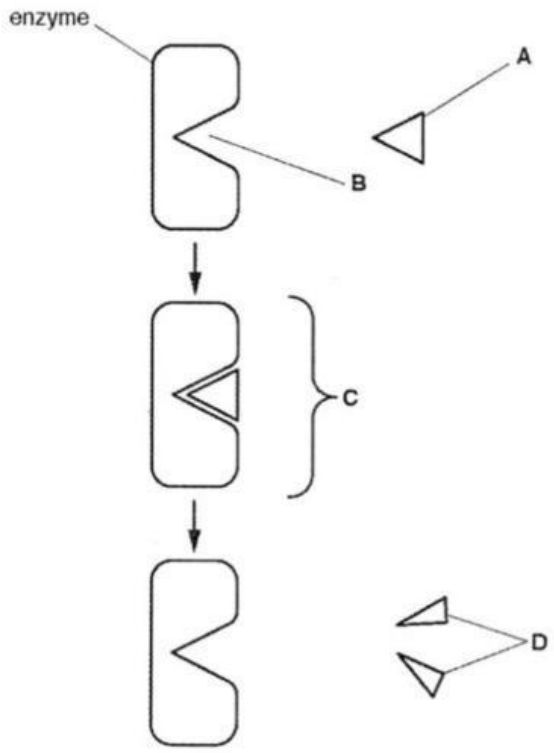


Fig. 1.1

State the names of **A** to **D** in Fig. 1.1.

Substrate

A .....

B **Active site.**

C **Enzyme-substrate complex.**

Product

D .....

[4]

LIVEWORKSHEETS

(b) Explain the importance of chemical digestion.

- It results in the **production of small, soluble molecules**.
- These molecules are small enough to be **absorbed** through the **wall of the intestine** into the **blood**.

[2]

(c) Fig. 1.2 shows the human alimentary canal and associated organs.

The functions of some of these parts of the body are given in Table 1.1.

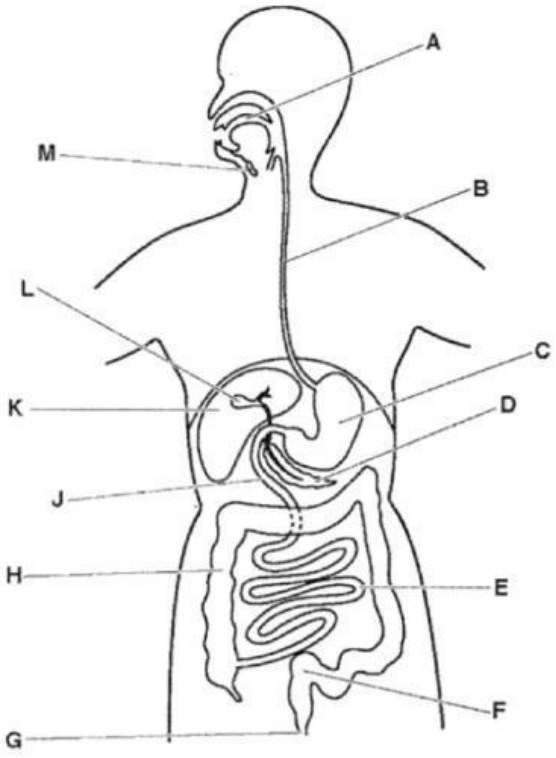


Fig. 1.2

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Complete Table 1.1. One row has been done for you.

Table 1.1

function	letter from Fig. 1.2	name of structure
site of starch digestion	A/J.E	Mouth, small intestine
reabsorption of water	J/E,H,F	Large, Small intestine, rectum
secretion of pepsin	C	Stomach
site of maltose digestion	J/E	Small intestine
secretion of bile	K,L	Liver, gall bladder
storage of faeces	**F**	rectum
secretion of lipase and trypsin	D	pancreas

[6]

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5. 2020 Summer Zone 1 Paper 4 Question 2

Biological washing powders contain enzymes that break down food stains.

(a) Complete Table 2.1 by naming the enzymes that break down three substances in food stains and by stating the product or products.

Table 2.1

substance	enzyme	product(s)
starch	Amylase	Maltose/glucose
fat	Lipase	Fatty acid/ glycerol
protein	Protease/trypsin/pepsin	Amino acids

[3]

Some students compared how effective biological and non-biological washing powders are at removing stains at temperatures between 10 °C and 60 °C.

- Pieces of stained cloth were washed using two different washing powders.
- The degree of stain removal was measured by using a light meter to record the percentage of light reflected from the cloth.
- A light meter gave a value of 100% when the cloth was completely clean.
- Any stain left on the cloth reduced the percentage of light reflected.

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(c) Table 6.1 lists some enzymes and the reactions that they catalyse.

Complete Table 6.1.

Table 6.1

enzyme	reaction
maltase	breakdown of maltose to ..glucose.....
protease	breakdown of proteins to amino acids
lipase	breakdown of fats to ..... Fatty acid ..... and ..... Glycerol .....
..lactase.....	breakdown of lactose to simpler sugars
DNA ligase	insertion of a short length of DNA into a plasmid
restriction enzyme	..... Break DNA molecules .....

[6]

[Total: 11]

LIVEWORKSHEETS