Answers to end-of-chapter questions
Chapter 7: Animal nutrition

1 a Enamel is the exceptionally hard outer layer of a tooth. Dentine is a softer layer beneath the enamel. Dentine contains living cells, but enamel does not.

b Digestion is the breaking down of large food molecules into small ones. Absorption is the movement of these small molecules through the wall of the small intestine and into the blood.

c The small intestine is longer and narrower than the large intestine. It is made up of the duodenum and ileum, whereas the large intestine is made up of the colon and rectum. Digestion and absorption of all types of food molecules – including water – takes place in the small intestine. Only water absorption takes place in the large intestine.

d Bile is a greenish liquid made in the liver and stored in the gall bladder, whereas pancreatic juice is made in the pancreas. Both liquids flow along ducts into the duodenum. Bile contains bile salts, which are not enzymes, but help to emulsify fats (break large droplets into small ones). Pancreatic juice contains several different digestive enzymes that digest fats, proteins and carbohydrates. Both bile and pancreatic juice also contain sodium hydrogencarbonate, which neutralises the acid from the stomach.

2 a a diet containing all the nutrients required by the body, in suitable proportions, and with the right amount of energy for a person's needs.

b i and **ii** The diet for the teenage boy should contain plenty of protein, as well as carbohydrate and fat, and sources of each mineral and vitamin. Its total energy content should be about 1150 kJ. The diet for the pregnant woman should also contain plenty of protein, plus plenty of calcium and iron. Its total energy content should be about 8250 kJ.

3 a A salivary gland

B oesophagus

C stomach

D pancreas

E duodenum

F ileum

G colon

H rectum

I anus

J liver

b i A and D

ii C and D

iii D

iv C

v E and F

vi F and G

vii I

4 ingestion
amylase
starch
mucus
oesophagus
hydrochloric
proteins
duodenum
small
pancreas
gall
fatty acids
glycerol

5 a vitamin C and vitamin D; [1]

b they all already are small molecules ;
which can pass through the walls of
the ileum; [2]

c any two dairy foods, bread; [1]

d anaemia;
lack of energy;
iron is needed to make haemoglobin;
which transports oxygen around the body;
lack of oxygen means less respiration; [max 3]

e helps calcium to be absorbed;
needed for making, bones / teeth; [2]

6 a A incisor;

B canine;

C molar; [3]

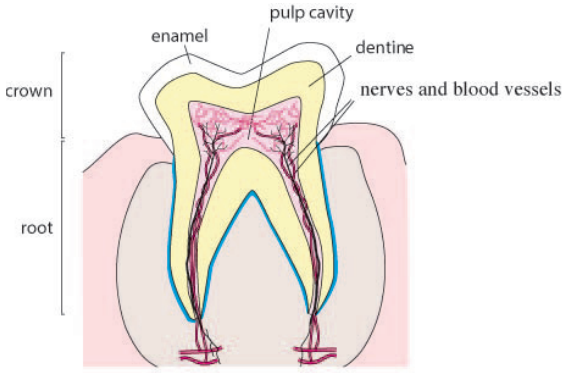
b 

diagram shows a molar tooth;
correct labels to:
enamel;
dentine;
pulp cavity;
nerves and blood vessels;
crown / root; [6]

c tooth A: cut off pieces of food;
to help with ingestion;
tooth C: crush / grind, food;
to increase surface area for enzyme action; [4]

7 a

Solution	Number of drops of DCPIP used
X	22
Y	6
Z	11

table drawn with ruled columns and rows;
each column fully headed;
all entries correct; [4]

b 0.2 %;
it required half the number of drops as
solution X;
so had half the concentration; [3]