

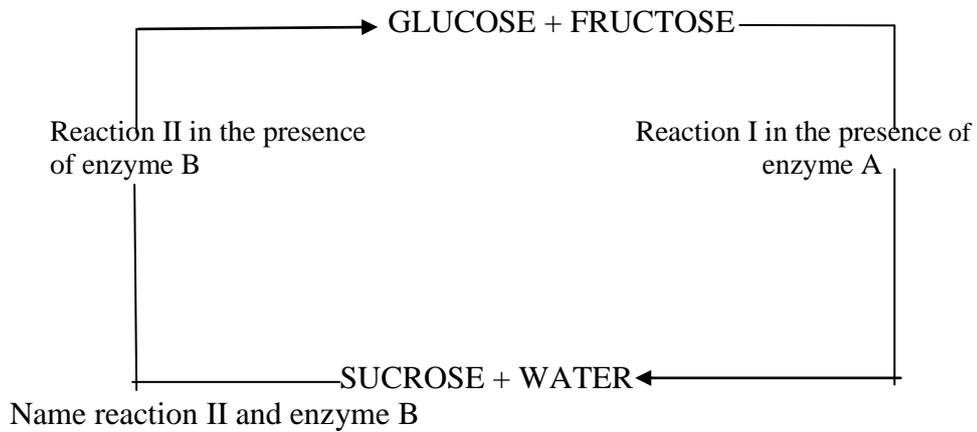
NAME _____ INDEX NUMBER _____

SCHOOL _____ DATE _____

NUTRITION IN PLANTS AND ANIMALS

1. 1989 Q1 P1

The diagram below shows chemical reactions I, and II which are controlled by enzymes respectively.



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2. 1990 Q1 P1

Explain the biological principles behind the preservation of meat be:-

i. Salting

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.....

ii. Refrigeration

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.....

iii. Canning

.....
.....

3. 1991 Q4 P1

State one similarity and one difference between parasitic and predatory modes of feeding

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4. 1991 Q9 P1

In an investigation, the pancreatic duct of a mammal was blocked. It was found that the blood sugar regulation remained normal while food digestion was impaired. Explain these observations.

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5. 1992 Q1 P1

(a) Name the products of light reaction in photosynthesis.

.....
.....

(b) Explain why insectivorous plants such as *Drosera* species trap and digest insects

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

6. 1992 Q12 P1

a) (i) Identify the mode of feeding of the animal whose dental formula is given below

I	0	C	0	pm	3	m	2
	2		0		3		2

.....
.....

(ii) Give reasons for your answer in (a) (i) above

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

(b) Give four ways by which the tapeworm is (taenia Spp) is adapted to living in the alimentary canal of its host.

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.....
.....

7. 1993 Q1 P1

Explain how a greyish black substance develops on a moist slice of bread after a few days.

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.....

8. 1993 Q5 P1

Give a reason why lack of roughage in diet often leads to constipation

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.....

9. 1993 Q18 P1

(a) Name the various methods used in preserving food.

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.....
.....

(b) Explain how each of the methods you have named in (a) above works.

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10. 1994 Q20 P1

Describe the economic importance of:

i. Bacteria

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

.....
.....
.....
ii Fungi

11. 1995 Q5 P1

State the role of light photosynthesis (2 marks)

12. 1995 Q7 P1

Complete the table below on mineral nutrition in plants (3 marks)

Mineral element	Function	Deficiency symptoms
	Synthesis of proteins and protoplasm	Stunted growth and yellowing of leaves
Calcium		
	Forms part of chlorophyll	Yellowing of leaves

13. 1996 Q4 P1

Name the disease in humans that is caused by lack of vitamin C (1 mark)

14. 1996 Q7 P1

(a) State the role of light in the process of photosynthesis (1 mark)

(b) Name one end product of dark reaction in photosynthesis (1 mark)

15. 1997 Q10 P1

Name a disease caused by lack of each of the following in human diet.

Vitamin D

Iodine

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.....
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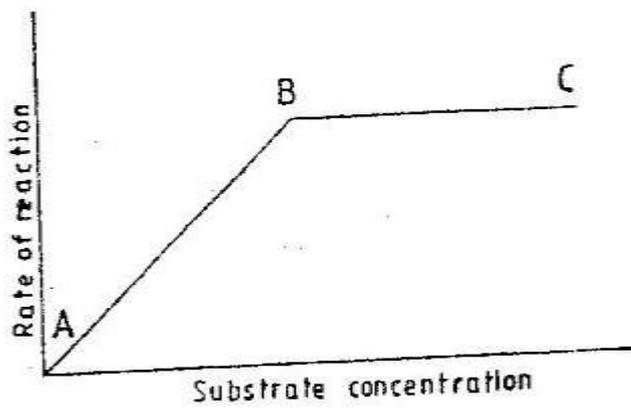
20. 2001 Q5 P1

State two functions of muscles found in the alimentary canal of mammals.

.....
.....

21. 2001 Q12 P1

The graph below shows the effect of substance concentration of the rate of enzyme reaction.



(a) (i) Account for the shape of the graph between A and B

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

(ii) B and C

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

(b) How can the rate of reaction be increased after point B?

.....

(c) State two other factors that effect the rate of reaction of enzyme reaction

.....

22. 2001 Q16 P1

An experiment was carried out to investigate the nutritional value of two dry powder animals feeds X and Y over a period of six months. Twenty 5 month's old castrated goats were use. The goats were divided into two equal groups A and B.

The animal's in group A were fed on feed X throughout the experiment while those of group B were fed on feed Y.

The feeds were supplemented with dry hay and water. The average body weight of each group of goats and the weight of the dry powder feeds were determined and recorded each month. The faeces produced by each group was dried and weighed and the average dry faecal output per month was also recorded. The results are as shown below.

	GROUP	A		GROUP	B	
Months since commencement of the experiment	Average total weight of goats (kg)	Average weight of total feed.(kg)	Average monthly dry faecal output (kg)	Average total weight of goats(kg)	Average weight of total feed (kg)	Average monthly dry faecal output (kg)
0	20.4	26.7	10.5	20.5	35.4	16.5
1	22.5	27.5	10.7	19.5	34.3	17.7
2	24.5	25.8	10.3	19.0	35.2	17.2
3	26.3	18.5	8.8	18.5	36.1	17.5
4	28.0	16.6	7.2	17.1	36.0	16.9
5	29.4	16.3	6.0	16.3	35.8	16.8
6	29.5	16.1	5.6	15.6	35.5	16.6

(a) (i) What is the relationship between the amount of feed and the faecal output

.....

(ii) Work out the average increase in weight for the animal's in group A during
The first four months

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

The last two months

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

(iii) Account for the average increase weight in goats in group A during the first four
months

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

The last two months

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

(iv) Which of the two feeds is more nutritious?

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

Give reason for your answer

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

(b) State four uses of digested food in the bodies of animals

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

(c) State four uses of water in the bodies of animals

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

23. 2002 Q3 P1

a) State the function for co-factors in cell metabolism

.....
.....

b) Give one example of a metallic co – factor

.....

24. 2002 Q10 P1

What happens to excess fatty acids and glycerol in the body?

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

25. 2003 Q8 P1

State a function of the large intestine in humans

.....

26. 2004 Q9 P1

Name two mineral elements that are necessary in the synthesis of chlorophyll.

(2 marks)

.....
.....

27. 2006 Q8 P1

State the role of vitamin C in humans.

(2 marks)

.....
.....

28. 2006 Q11 P1

State the role of insulin in human body.

(1 mark)

.....
.....

29. 2006 Q17 P1

a) Distinguish between the terms homodont and heterodont. (1 mark)

.....
.....

b) What is the function of carnassials teeth? (1 mark)

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

c) A certain animal has no incisors, no canines, 6 premolars and 6 molars in its upper jaw. In the lower jaw there are 6 incisors, 2 canines, 6 Premolars and six molars.

Write its dental formula.

.....
.....

30. 2006 Q18 P1

a) State two functions of bile juice in the digestion of food. (2 marks)

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.....

b) How does substrate concentration affect the rate of enzyme action? (1 mark)

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.....

31. 2006 Q27 P1

Name the end products of the light stage in photosynthesis.

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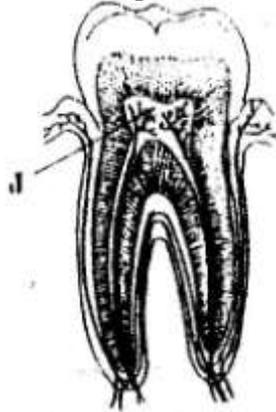
32. 2007 Q6 P1

Describe what happens during the light stage of photosynthesis (3 marks)

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33. 2007 Q7 P1

The diagram below represents a section through a human tooth



(a) (i) Name the type of tooth shown (1 mark)

.....

(ii) Give a reason for your answer in (a) (i) above (1 mark)

.....

(b) State the functions of the structures found in part labelled J (2 marks)

.....

.....

.....

34. 2007 Q8 P1

(a) Name a fat soluble vitamin manufactured by the human body (1 mark)

.....

(b) State two functions of potassium in the human body (2 marks)

.....

.....

35. 2007 Q25 P1

(a) The action of ptyalin stops at the stomach. Explain (1 mark)

.....

.....

.....

(b) State a factor that denatures enzymes (1 mark)

.....

(c) Name the features that increase the surface area of small intestines (2 marks)

.....

.....

36. 2008 Q5 P1

(a) State two factors that affect enzymatic activities (2 marks)

.....
.....

(b) Explain how one of the factors stated in (a) above affects enzymatic activities (1 mark)

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

37. 2008 Q9 P1

Give three factors that determine the amount of energy a human being require in a day (3 marks)

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

38. 2008 Q10 P1

(a) Name the antigens that determine human blood groups (2 marks)

.....
.....

(b)State the adaptation that enables the red blood cells to move in blood capillaries (1 mark)

.....
.....

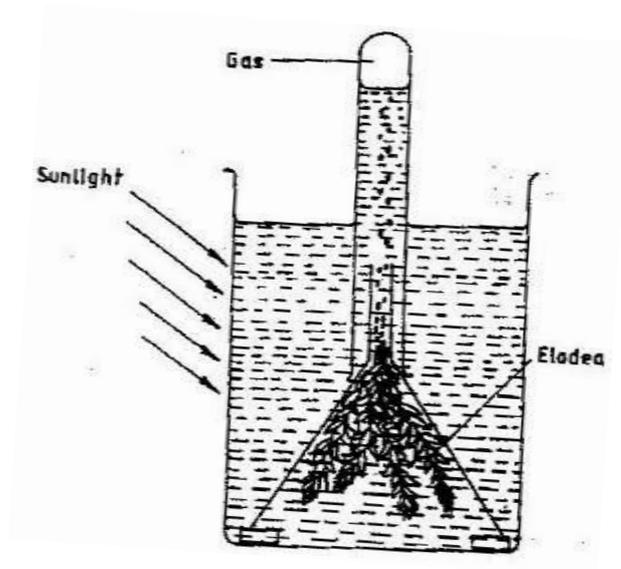
39. 2008 Q15 P1

Explain what happens when there is oxygen debt in human muscles (2 marks)

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

40. 2008 Q16 P1

The diagram below represents a set up that was used to investigate certain process in a plant



(a) State the process that was being investigated (1 mark)

.....

(b) State a factor that would affect the process (1 mark)

.....

41. 2008 Q18 P1

How is the epidermis of a leaf of a green plant adapted to its function (2 marks)

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

42. 2008 Q23 P1

The diagram below shows a human tooth (2 marks)



(a) Identify the tooth (1 mark)

.....

(b) How is the tooth adapted to its function (1 mark)

.....
.....

(c) State the role of the following vitamins in the human body

(i) C (1 mark)

.....
.....

(ii) K (1 mark)

.....
.....

43. 2008 Q24 P1

Name the sites where light and dark reactions of photosynthesis take place (2 marks)

Light reaction.....

Dark reaction.....

44. 2009 Q18 P1

Explain how the following factors affect the rate of photosynthesis:

(a) Concentration of carbon (iv) oxide (1 mark)

.....
.....

(b) Light intensity (1 mark)

.....
.....

45. 2009 Q22 P1

Explain how the carnassials teeth of a dog are adapted to their function (2 marks)

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

46. 2009 Q23 P1

State the function of iron in the human body (1 mark)

.....

47. 2009 Q24 P1

Explain how the following factors determine the daily energy requirement in human:

(a) Age (1 mark)

.....
.....

(b) Occupation (1 mark)

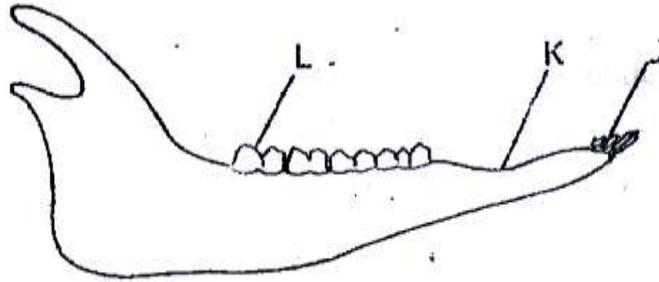
.....
.....

(c) Sex (1 mark)

.....
.....

48. 2009 Q2 P2

The diagram below represents the lower jaw of a mammal



(a) Name the mode of nutrition of the mammal whose jaw is shown (1 mark)

.....

(b) State one structural and one functional difference between the teeth labelled J and L (1 mark)

Structural

.....

Functional

(1 mark)

.....

(c) (i) name the toothless gap labeled K. (1 mark)

.....

(d) Name the substance that is responsible for hardening of teeth (1 mark)

.....

49. 2010 Q16 P1

What is the role of bile salts in humans? (2 marks)

.....
.....

50. 2010 Q17 P1

The following is the dental formula of a certain mammal:

$$i \ 0/3 \ c \ 0/1 \ pm \ 3/3 \ m3/3$$

a) State the likely mode of feeding for the mammal. (1 mark)

.....

b) Give a reason for your answer in (a) above. (1 mark)

.....

51. 2011 Q2 P1

a) Write the dental formula of an adult human. (1 mark)

.....

b) Name two dental diseases. (2 marks)

.....

.....

52. 2011 Q13 P1

State two functions of carbohydrates in the human body (2 marks)

.....

.....

53. 2011 Q18 P1

a) Name one salivary gland in humans. (2 marks)

.....

b) State two functions of saliva. (2 marks)

.....

.....

54. 2012 Q1 P1

How does nutrition as a characteristic of living organisms differ in plants and animals? (2 marks)

.....

.....

.....

55. 2012 Q11 (b) P2

Name the muscles found in the following organs:

Stomach;

Bone..... (2 marks)

56. 2012 Q29 P1

Name two nutrients that are observed without being digested by enzymes in humans. (2 marks)

.....

.....

57. 2012 Q3 P2

(a) In an investigation, equal amounts of water was placed in three test tubes labeled G,H and J. Pond weeds of equal length were dropped in each test tube. The test tubes were then placed in Identical conditions of light and carbon(IV)oxide at different temperatures for five minutes. After five minutes, the bubbles produced in each test tube were counted for one minute. The results were as shown in the table below.

Test tube	Temperature (⁰ c)	Number of bubbles
G	20	28
H	35	42
J	55	10

(i) Name one requirement for this process that is not mentioned in the investigation. (1 mark)

.....

(ii) Name the gas produced in this investigation. (1 mark)

.....

(iii) Account for the results in test tubes H and J. (2 marks)

.....
.....

(b) State two ways in which the human intestinal villus is adapted to its function.(4 marks)

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.....
.....

NUTRITION IN PLANTS AND ANIMALS MARKING SCHEME

1. **1989 Q1 P1**
Reaction I: - Condensation
Enzyme B: - Sucrase
2. **1990 Q1 P1**
 - i) Salting – This removes/absorbs water by osmosis from the micro-organism cells which then die due to dehydration. Meat also becomes dehydrated and thus unsuitable for microbial growth.
 - ii) Refrigeration- Low temperature renders the micro-organisms inactive (Enzymes do not work at low temperatures)
 - iii) Canning – Boiling kills all micro-organisms in the food; sealing under pressure excludes all micro-organisms and ensures that no growth takes place.
3. **1991 Q4 P1**
Similarity- Both are heterotrophic.
Difference: Predators kill to get food while parasites obtain foods without (necessarily) killing the host.
4. **1991 Q9 P1**
Pancreatic juice containing digestive enzymes; is prevented from reaching food Insulin(and glucagons) which regulates sugar is released directly into the blood stream.
5. **1992 Q1 P1**
 - a) ATP, Oxygen, Hydrogen/Reduced NADP.
Acc. H⁺, NADP.H₂
 - b) Such plants grow in nitrogen deficient soils; insect provides them with nitrogen
6. **1992 Q12 P1**
 - a) i) Herbivorous
ii) Absence of incisors in the upper jaw
Presence of diastema/Absence of canines
 - b) –Long flat body suitable for fitting into the alimentary canal providing large surface area for absorption of food.
 - Presence of suckers/hooks for attachment/preventing it from being egested(moved out)
 - Produces Chemicals/mucus to neutralize/inhibit/prevent digestion of hosts enzyme.
 - Loss/lack of simplified digestive systems because they are not needed
 - High eggs production to ensure next generation
 - Tolerance to low oxygen content/anaerobic.
7. **1993 Q1 P1**
-Mould/fungal spores (in the air) land on the bread; they germinate and develop into mycelin/hyphae; when the mycelin mature they form black sporangia

8. 1993 Q5 P1

- Roughage provides grip needed for peristalsis/lack of roughage results in slow/no movement of food leading to constipation. (Acc. Add bulk to food peristalsis to take place:)

9. 1993 Q18 P1

a) Use of chemicals/preservative/ash

Canning/tinning/bottling

Smoking

Refrigeration/cold storage/freezing

Salting/honey/sugar

Drying/heating

Pasteurization

b) (i) Chemical/ash/preservatives- Denature the protein in bacteria/kills bacteria also stops the growth of micro-organisms/multiplication.

ii) Canning/bottling/tinning- Sterilizing/killing micro-organisms and subsequent scaling prevents entry of micro-organisms.

iii) Radiation- Kills/initiates micro-organisms.

iv) Smoking- Has drying effect,which kills the micro organisms by dehydration/ coagulating proteins,and also contains formaldehyde which kills the micro-organisms.

v) Drying/heating- Dehydrates the food making the environment suitable for the growth of micro-organism;when they're dehydrated their growth is also reduced.

vi) Refrigeration/cold storage- Initiative the enzymes in food preventing autolysis;metabolic activities of micro-organisms is reduced/inactivated therefore no growth/multiplication;the water in micro-organisms food,also gets frozen stopping them from multiplying.

vii) Salting/putting in sugar/honey- Dehydrates the food thus making the environment unsuitable for the growth of micro-organisms;which may also be dehydrated thus reducing their growth/multiplication

viii) Pasteurisation/boiling/UHT- kills micro-organisms

Rej. Germs for micro-organisms

Acc. Bacteria for micro-organisms

10. 1994 Q20 P1

i) Bacteria- Used in the manufacture of: antibiotics,butter/cheese/fermentation of milk/curing leaf/tobacco,Vitamin K, enzyme such as amylase/invertase,vinegar/lactic/citric acid

- Septic tanks/modern sewage marks make use of bacteria in the treatment of sewage/biogas production.
- Saprophytic bacteria are used to compost decomposition.
- Symbiotic bacteria in ruminants help in digestion
- (some) bacteria cause disease to man/animals/plants
- Many bacteria destroy/spoil/decay food

- Nitrifying/nitrogen fixing bacteria increase soil fertility/ make nitrates available
- Denitrifying bacteria reduce fertility/reduce nitrates in the soil/convert nitrates to nitrogen gas

- ii) Fungi – (Some) cause decay/destroy/spoil our food
- (Some) cause diseases to human/animals
 - May be used as food e.g mushroom/yeast
 - Used in the production of antibiotics e.g penicillin/streptoma
 - Cause diseases to our crops/plants e.g potato blight
 - Yeast used in brewing industry/baking/source of vitamin
 - Important in recycling nutrients in the soil/cause decay
 - Mycorrhizal association is important in water absorption/nitrogen fixation in forests

11. 1995 Q5 P1

Provide energy required for splitting water molecules/ photosynthesis.

12. 1995 Q7 P1

Nitrogen

Making cell walls

Magnesium / mg

13. 1996 Q4 P1

Scurvy

14. 1996 Q7 P1

(a) To split water/ Photosynthesis/hydrous

(b) Glucose/carbohydrate/ starch/ sugar.

15. 1997 Q10 P1

Vitamin D- Rickets/Osteoporosis

Iodine- Goitre

16. 1997 Q20 P1

(a) Breakdown of (complex) food substances by enzymes; to simpler compounds (which can be absorbed)

(b) Small intestines are long/coiled: to offer large surface area for digestion and absorption:

The walls are muscular: for peristalsis/ inner walls possess mucus glands/ accept goblet cells that secrete mucus; for lubrication; and protection of wall from digestive enzymes:

The inner walls have digestive glands: that secrete (digestive) enzyme:

The inner walls have villi: to increase surface area, absorption/ diffusion; accept 'epithelium is one cell thick'

The Villi have numerous blood vessels: for transport of the end products of digestion; accept at least two correctly named examples/ end products of glucose amino acids/ mineral salts vitamins.

The villi also have vessels for transport of fats/lipids

Accept illustrations of cell are thick epithelium

17. **1998 Q2 P1**
Yellowing of leaves/stunted/ growth/chlorosis/ lack chlorophyll
18. **1998 Q14 P1**
(a) Light; Rej: light intensity
(b) Test for starch
(c) (i) The covered part of the leaf remain brown/yellow/ retain color of iodine, and the uncovered parts turned blue/ black; rej blue alone black alone.
(ii) Starch was formed in the covered part of the leaf (because of the presence); while starch was not formed in the covered part of the leaf (because of lack light)
(d) To destarch the leaf; OWETT
19. **1998 Q20 P1**
The mammalian intestines are relatively long/coiled/folded. This allows food enough (enough) lime/increases surface area for digestion and absorption of products of digestion. The intestinal surface area for absorption. The glands have enzymes which secrete enzymes for digesting e.g. of correct enzyme, maltase, sucrase, lactase, enterokinase and peptidases. Some glands/goblets cells also produce mucus which protects the intestinal wall from being digested, reduce friction. Intestines have opening of ducts which allows bile/pancreatic juice into the lumen. The intestines have circular and longitudinal muscles whose contraction/relaxation/peristalsis leads to the mixing of food with acc.
- At least enzymes/juices facilitating rapid digestion and helps pus food along the gut. Intestines are well supplied with blood vessels to supply oxygen/remove digested food. Presence of lacteal vessels for transport of fats/lipids.
- Have thin epithelia to facilitate fast/rapid absorption/diffusion. Allow increase in surface area for absorption only.
- Cell biology/cytology. Occurrence of cell e.g. mitochondria, ribosome's, nucleus, cytochromes organelle point to a common ancestry.
20. **2001 Q5 P1**
Act as valves for regulations of food movement/ to close or open various parts of the canal.
- Churning (acc. mixing food with enzymes) pushing food along peristalsis
21. **2001 Q12 P1**
(a) (i) More active sites of enzymes available, for a large number of Molecules of substrate; hence increase in the rate of reaction (rapid of fast increase in the rate of reaction)
(ii) B and C
Enzymes/ substrate are in equilibrium / All active sites are occupied; hence rate of reaction is constant.
(b) Raising concentration of enzymes
(c) P^H, temperature, inhibitors/ cofactors

22. 2001 Q16 P1

- (a) (i) The more the feed the more the faecal output
The less the feed the less the faecal output
(ii) The first four months

$$\frac{2.1 + 2.0 + 1.8 + 1.7}{4} \quad \left| \quad \frac{28.0 - 20.4}{4} \quad \left| \quad \frac{7.6; 1.9 \text{ (kg)}}{4}$$

The last two months

$$\frac{14 + 0.1}{2} \quad \left| \quad \frac{29.5 - 28.0}{2} \quad \left| \quad \frac{1.5}{2} = 0.75\text{kg}$$

- (iii) Fast/ rapid/Active growth hence increase in weight
The last two months
Slow growth, reached maturity
(iv) Feed X
Give reason for your answer
Group A gained (more) weight, on less food while group B lost weight on more food.
b) growth, repair, protection, energy production
c) a solvent, transport medium.. Hydrolyses of food, maintenance of temperature.

23. 2002 Q3 P1

- a) Substances that activate enzymes
b) Metallic ions e.g. iron / mg / Zn / Cu /(accept correct iron forms)
Fe²⁺, Mg²⁺, Ca²⁺, Mn²⁺, CO₂⁺, KI, mo²⁺, (Reject wrong charges).

24. 2002 Q10 P1

Converted into fatty acids and stored beneath skin (adipose tissue)

25. 2003 Q8 P1

Absorption of water; accept absorption of salts / calcium / iron;
secretion of mucus

26. 2004 Q9 P1

Nitrogen;
Magnesium;
Iron, acc. Magnesium ion/ iron rej symbols of elements

27. 2006 Q8 P1

Prevents scurvy/ prevent bleeding of gums/ prevent bleeding of gums/
Prevents poor healing of wounds/ prevent degeneration of muscle and
cartilages/ prevent red spot on skin/ prevent anaemia
Excretion absorption of iron
Enables absorption of iron
Boost immunity
Development of healthy gums
Synthesis/ maintenance of collagen fibres/ connective

28. 2006 Q11 P1

Stimulates conversion of excess glucose to glycogen for storage

Enhances break down of glucose; stimulates glucose converts to fats and stored.

29. 2006 Q17 P1

- (a) Homodont – having same kind/ type/ similar teeth. Heterodont – having different type kind of teeth
- (b) Cutting/ chopping/ Shearing/ Slicing/ crusting
- (c) $C \underline{0} PM \underline{3} M \underline{3}$
1 3 3
Either capitals or small letters accepted. Their must horizontal line separating upper jaw from lower jaw.

30. 2006 Q18 P1

- (a) Emulsification of fats/ breaking into small droplets; Increase surface area for digestion; Neutralizes acidity of chime/ provides alkaline media for enzyme action.
- (b) Increase in substrate concentration rise enzyme action up to a certain point and further rise of substrate will have no effect.

31. 2006 Q27 P1

Hydrogen; Oxygen

32. 2007 Q6 P1

Take place in the grana of the chloroplast. Light is absorbed and used to split water molecules into hydrogen ions and oxygen, photolysis. Energy is formed and is stored in form of ATP

33. 2007 Q7 P1

- (a) (i) – Pre- molar tooth
- (ii) – presence of two roots
 - Presence of cusps of the crown
- (b) Has nerve cells that increase sensitivity of the tooth to heat and pain
 - Has a blood vessel that provides nourishment to the tooth and remove Waste products

34. 2007 Q8 P1

- (a) Vitamin D, Vitamin K.
- (b)- Transmission of nerve impulses
 - Ionic balance/ osmotic balance
 - Contraction of muscles

35. 2007 Q25 P1

- (a) In the stomach there is acid medium and ptyalin only acts at slightly alkaline medium
- (b) High temperature above 40°
- (c) Villi- microvilli

36. 2008 Q5 P1

- (a) Temperature PH co- factors, co- enzymes; enzyme product concentration; substance concentration/ metabolic poison

(b) -Temperature- increase in temperature increases rate of enzymatic activity upto an optimum/ low temperature increases enzymatic activity/ too high temp about optimum point denatures enzymes/ enzymatic activity occur at optimum temp.

- Ph- Enzymes work best at optimum ph/ or extreme for ph denatures enzymes.

- Enzyme con – Increase in con increase enzymatic activity occur at optimum temperature

- Co- enzymes – denatures enzymes increasing rate of activity

-Strate/ enzyme cone- increase in concentration increase enzymatic activity upto certain level.

37. 2008 Q9 P1

(a) Body size; sex; age

38. 2008 Q10 P1

(a) Antigen B, Antigen A

(b) Flexible/ able to change in shape

39. 2008 Q15 P1

Muscles respire anaerobically; resulting in accumulation of lactic acid in the tissue; causing fatigue/ muscle cramps.

40. 2008 Q16 P1

(a) Photosynthesis

(b) Carbon (iv) Oxide/ Temp/ chlorophyll

41. 2008 Q18 P1

Transparent to allow light to penetrate photosynthetic tissue/ single layer of cells/ thin to reduce distance over which light penetrate photosynthetic tissue; presence of stomata for gaseous exchange; closely fitting cells to protect inner tissues

42. 2008 Q23 P1

(a) Canine

(b) Pointed/ sharp for piercing/ tearing/ cutting food

(c) (i) C- Absorption of iron/ prevent scurvy/ quick healing of wounds/ best immunity/ ant oxidants/ prevents anaemia/ formation of connective tissues/ K – blood clotting

43. 2008 Q24 P1

Light reaction – Granum/ lamellae/ mitochondria/ thylakoid

Dark reaction – Stroma

44. 2009 Q18 P1

(a) Rate of photosynthesis increases as CO₂ concentration increases up to a certain level / optimum level and (vice versa);

NB: Must mention up to optimum level or certain level

Acc: Reverse: The rate of photosynthesis decreases with decrease in CO₂ concentration until it stop

b) Rate of photosynthesis increase as the light intensity increases up to an optimum level (and vice versa)

45. **2009 Q22 P1**
Large / powerful for cracking / breaking / crushing bone;/ slide past each other / scissor – like for shearing / cutting / slicing (off) flesh / tendons / skin from bone;
46. **2009 Q23 P1**
A component of hemoglobin / formation of haemoglobin; *Acc:*
Myoglobing
47. **2009 Q24 P1**
(a) Young people are actively / rapidly growing hence require more energy than older people *NB: Growth has to be mentioned*
(b) Manual workers require more energy than secretary workers
(c) Males are more muscular hence require more energy than females
48. **2009 Q2 P2**
(a) Herbivorous: *Rej Herbirore Acc Herbirory*
(b) Tooth J is narrow / sharp / chisel like while tooth L is broad / ridged.
Accept: J has one root while L has 2/3/4 roots
Functional
(b) (i) Diastema
(ii) For manipulation of food by the tongue
(c) Calcium phosphate; Rj calcium / phosphorous / phosphate.
49. **2010 Q16 P1**
Emulsification / breaking down of fats into (tiny) droplets
Creating alkaline medium for digestive enzymes/ neutralizing acidic chime (from the stomach)
50. **2010 Q17 P1**
(a) Herbivorous; Rej Herbivores
(b) Lack canines/ incisors on upper jaws
51. **2011 Q2 P1**
a) I $\frac{2}{2}$ c $\frac{1}{1}$. pm $\frac{2}{2}$ m $\frac{3}{3}$; (1 mark)
b) Dental carries
Periodontis; gingivitis / pyorrhoea (2 marks)
52. **2011 Q13 P1**
Source of energy; Storage materials; (2 marks)
53. **2011 Q18 P1**
a) Sublingual gland ; sub maxillary gland; parotid gland first one (2 marks)
b) Lubricating food; digestion; moisten food; provide alkaline medium;
(2 marks)
54. **2012 Q1 P1**
Plants make their own food from carbon (IV) oxide and water in the presence of light/photosynthesis/autotrophic,while animals eat readymade food (from plants and animals) heterotrophic

55. **2012 Q11b P1**
(b) Stomach – smooth
Bone – skeletal
56. **2012 Q29 P1**
water; mineral ions/salts; vitamins
57. **2012 Q3 P2**
Solutes/sodium ions/potassium chloride ions are reabsorbed into the
bloodstream.