

Past HKCEE Questions
Food and Humans
Paper I

1. Digestive juices were collected from two regions, A and B, of the alimentary canal of a rat. Each preparation was divided into four test-tubes, to which a sample of boiled plant tissue was added. Food tests were carried out on each tube, and the results are shown in the tables below:

Experiment I (using digestive juice from region A)

Food test	Biuret test		Benedict's/Fehling's test	
	A1	A2	A3	A4
Tube no.				
Time when food test was applied	at 0 hour	after 1 hour	at 0 hour	after 1 hour
Observation	violet colour	blue colour	blue solution	red precipitate

Experiment II (using digestive juice from region B)

Food test	Biuret test		Benedict's/Fehling's test	
	B1	B2	B3	B4
Tube no.				
Time when food test was applied	at 0 hour	after 1 hour	at 0 hour	after 1 hour
Observation	violet colour	violet colour	blue solution	red precipitate

- (i) Referring to the tube numbers, indicate which tube(s) gave a *positive* result for
(1) the Biuret test.
(2) the Benedict's/Fehling's test.
- (ii) What conclusion can be drawn from the results of
(1) the Biuret test in experiment I?
(2) the Benedict's/Fehling's test in experiment II?
- (iii) Give one name each for the regions A and B and hence suggest the names of the juices collected.

(HKCEE 1984)

2. The table below shows an analysis of the food taken by a 15-year-old boy during the course of one day: (roughage = dietary fibre)

Meal	Food taken	Food components					Energy obtained (kJ)
		carbohydrate (g)	fat (g)	protein (g)	vitamin C (mg)	roughage (g)	
Breakfast	hot drink milk	180	36	18	0	0.5	3185
Lunch	fried chicken leg potato chips soft drink	65	33	45	0	1	3238
Supper	broiled meat rice	180	15	36	0	1	3000
	Daily total	425	84	99	0	2.5	9423

- (i) Apart from water, which essential inorganic component of a balanced diet is not listed in the table?
- (ii) Of the food taken for lunch and supper, which one would provide the largest proportion of carbohydrate?
- (iii) The normal daily requirement of protein and

energy recommended for such a boy is 70 g and 11 700 kJ respectively.

- (1) Describe what happens to the excess protein in his body.
- (2) How can extra energy be derived from his body to meet his daily requirement?
- (iv) It is suggested that oranges should also be taken in order to make up for the deficiency of two of the food components listed.
- (1) Give two reasons supporting this suggestion.
- (2) State two kinds of disorder he would suffer as a result of a long term deficiency of such food components.

(12 marks)
(HKCEE 1985)

3. The table below shows the composition by weight of certain nutrients present in soya beans and milk. The daily requirement of an adult for the respective nutrients is also included.

Nutrient	Amount in 100 g soya bean (g)	Amount in 100 g milk (g)	Daily requirement of an adult (g)
Protein	38.00	3.30	60.00
Carbohydrate	31.30	4.70	380.00
Fat	18.00	3.80	80.00
Calcium	0.06	0.12	0.80

- (i) If the adult took in only 1000 g of soya bean in a day,
(1) which nutrients shown in the table would he be in excess of his daily requirement? (2 marks)
(2) **what would be the fate of the excess** nutrients in (i) in his body? (4 marks)
- (ii) Given that the energy content of 100 g of milk is 272 kJ, calculate the minimum amount of milk a baby should take per day in order to meet its daily energy requirement of 3400 kJ. (2 marks)
- (iii) Why is milk considered an ideal food for babies? (1 mark)
- (iv) What is the importance of calcium in the body? (1 mark)
- (v) State a test for the presence of protein in milk, and the result of such a test. (2 marks)

(HKCEE 1987)

4. The table below shows the average body weight, the daily requirements of energy and certain nutrients for four groups of people

	Body weight (kg)	Energy (kJ)	Protein (g)	Vitamin D (µg)	Iron (mg)
Children (4 to 6 years old)	20	7560	30	10	10
Men (23 to 50 years old)	70	11340	56	5	10
Women (23 to 50 years old)	55	8400	44	5	18
Pregnant women	65	9660	74	10	45

- (i)
- Which group of people requires the greatest amount of energy per unit body weight? Show how you arrive at your answer. (2 marks)
 - Suggest a reason why this group of people requires the greatest amount of energy per unit body weight. (2 marks)
- (ii) How do men differ from children in their requirements for vitamin D? Give a reason for this difference. (2 marks)
- (iii) Of the three adult groups, which group requires the largest amount of protein? Why is this so? (2 marks)
- (iv) Account for the difference in iron requirement for the men and the non-pregnant women. (2 marks)

5. The table below shows the contents and the energy value of human milk and cow's milk:

	Human milk (per 100 cm ³)	Cow's milk (per 100 cm ³)
protein	1.2 g	3.4 g
fat	3.8 g	3.8 g
carbohydrate	7.0 g	4.8 g
vitamin A	0.053 mg	0.034 mg
vitamin C	4.30 mg	1.80 mg
vitamin D	0.0008 mg	0.0002 mg
calcium	0.034 g	0.126 g
phosphorus	0.016 g	0.100 g
iron	0.00021 g	0.00015 g
water	87.6 g	87.2 g
energy value	300 kJ	290 kJ

WITH REFERENCE TO THE TABLE ABOVE, answer the following questions:

- (i)
- Which mineral is present in the least amount in both types of milk? (1 mark)
 - In the absence of this mineral, what deficiency symptom would develop? (1 mark)
- (ii) A one-year-old baby requires 5100 kJ of energy a day. How much human milk should the baby take in one day to meet its energy requirements? (1 mark)
- (iii) Give ONE advantage of breast feeding a baby over bottle feeding with cow's milk. Explain your answer. (2 marks)
- (iv) Suggest TWO reasons why cow's milk is better for the growth of children and youths.

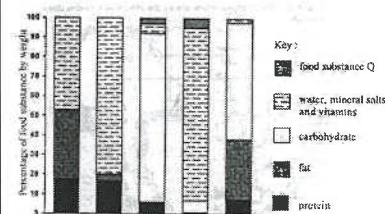
Explain your answer. (4 marks)

6. The table below shows the average daily energy requirements of people of different age groups.

Age	Average daily energy requirements (kJ)	
	Male	Female
10-12	9240	8820
13-15	11340	10080
16-18	13020	9240
19-35	11760	8400
36-55	10500	7560
56-75	8820	6300

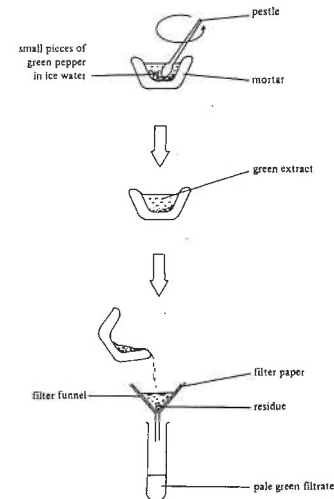
- (i) From the data in the table, suggest two factors that can affect the daily energy requirements. (2 marks)
- (ii) Which male age group has the highest daily energy requirement? Explain your answer. (2 marks)
- (iii) If the above readings were taken in summer, how would you expect the readings to differ if they were taken in winter? (2 marks)
- (iv) What will happen to a person if his daily energy intake is less than his daily energy requirement? (1 mark)
- (HKCEE 1993)

7. The bar chart below shows the composition of food eaten by an overweight child for lunch:



- (i)
- What is food substance Q? (1 mark)
 - Explain its importance to the body. (2 marks)
- (ii) The child often eats milk chocolate as a snack.
- Explain how it may contribute to his weight problem. (3 marks)
 - Explain how it may cause tooth decay. (3 marks)
- (iii) Explain why food from animals, such as pork and fish, is an important part of a child's diet. (2 marks)

8. The diagrams below show the steps involved in preparing a filtrate from green peppers:

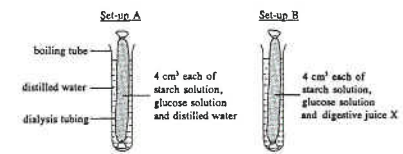


The pale green filtrate collected was tested for the presence of four types of food substances. The results are shown below:

Test	Result
Benedict's test	orange precipitate
Biuret test	blue solution
Iodine test	brown solution
DCPIP test	pale green solution

- (i) Name the pigment responsible for the green colour of the extract. (1 mark)
- (ii) With reference to the diagrams, explain why filtration is important in this experiment. (2 marks)
- (iii) The residue left on the filter paper contained mostly an indigestible substance. Name this substance and explain the importance of its presence in our diet. (3 marks)
- (iv) Deduce the types of food substances present in the filtrate. Give reasons for your answers. (4 marks)
- (HKCEE 1992)

9. Two pieces of dialysis tubing were filled with different solution mixtures and immersed in distilled water as shown below:



After 30 minutes, 2 cm³ of the water outside the dialysis tubing in set-up A was transferred into a separate test tube and Benedict's test was performed. The same procedure was repeated with set-up B. The results are recorded in the following table:

	Set-up A	Set-up B
Results of Benedict's test	+	+++

Key: '+' represents a small amount of red precipitate
'+++' represents a large amount of red precipitate

- (i) What can you deduce from the result of set-up A? (2 marks)
- (ii)
- Explain why the amount of red precipitate of set-up B is greater than that of set-up A. (3 marks)
 - Name two digestive juices from the human body that may produce the same result as digestive juice X. (2 marks)
- (iii) Suggest three important precautions to reduce experimental errors when setting up this experiment. (3 marks)
10. In order to lose weight, an 18-year-old girl, Jane, had a diet as shown in the table below:

		Energy (kJ)	Protein (g)	Fat (g)	Carbohydrate (g)	Calcium (mg)	Iron (mg)	Vitamin C (mg)	Vitamin D (µg)
Breakfast	Bread	900	8	1	44	80	2.3	0	0
	Jam	300	0	0	20	5	0.4	3	0
	Coffee	400	3	2	20	90	0	0	0
Lunch	Ham sandwich	1650	16	13	15	12	2.5	0	0
	Coffee	400	3	2	20	90	0	0	0
	Fish	540	20	5	0	390	2.7	0	8.0
Dinner	Rice	3000	12	2	174	8	1.0	0	0
	Lettuce	30	1	0	1	23	1.0	15	0
Total intake per day		63	25	294	608	9.9	18	8.0	
Average daily requirement		58	*	*	600	15	30	2.5	

* Amount variable

- (i) If the average daily energy requirement for Jane is about 9200 kJ, explain why this diet will be effective in helping her to lose weight. (3 marks)

- (ii) Protein in the diet can be absorbed into the body as amino acids. Explain how amino acids can provide energy for Jane's daily activity. (3 marks)
- (iii) If Jane continues this diet for several months, what disease will she probably develop as a result of mineral deficiency? (1 mark)
- (iv) Describe a food test to show that fat is present in ham. (3 marks)
- (HKCEE 2000)

11. Some vegetarians eat plant foods only.
- (a) From the nutritional point of view, explain two advantages of having a diet rich in plant foods over that with little plant foods. (4 marks)
- (b) Most plant foods have low protein content. Suggest a plant food that can provide a lot of protein to the vegetarians. (1 mark)
- (HKCEE 2005)

12. Glycemic Index (GI) is a ranking of foods containing carbohydrates. It is based on their immediate effect on the blood glucose level after consumption. The higher the GI value of a food, the quicker the rise of blood glucose level. Below are the major food constituents and the GI values of some common food items:

Food item	Major food constituents			GI value
	Carbohydrate	Fat	Protein	
Whole milk	✓	✓	✓	27
Fat-free milk	✓	✗	✓	32
Cornflakes	✓	✓	✓	92
Oatmeal	✓	✓	✓	49

Key: ✓ = nutrient present
✗ = nutrient absent

- (i) With reference to the major constituents of whole milk and fat-free milk in the above table, suggest why whole milk has a lower GI value. (3 marks)
- (ii) For a diabetic person, which breakfast food item, cornflakes or oatmeal, is more suitable? Explain your choice. (3 marks)
- (iii) Besides GI values, state and explain two other considerations regarding the nutritional content of food when you plan a healthy diet to reduce body weight. (4 marks)
- (HKCEE 2007)

Past HKCEE Questions Food and Humans Paper II

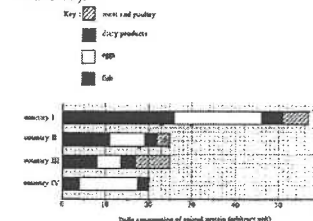
90.
90-06
In a starving mammal, the food reserves in the body will be depleted for energy release according to the following sequence:
- carbohydrates, proteins, fats
 - carbohydrates, fats, proteins
 - fats, carbohydrates, proteins
 - fats, proteins, carbohydrates

- 90-12
Nitrogen compounds are required by plants to form
- glucose.
 - cellulose.
 - fatty acids.
 - amino acids.

91.
91-10
Which of the following combinations is INCORRECT?

Deficiency of	Disease
A. iron	goitre
B. vitamin B	beri-beri
C. calcium	rickets
D. vitamin C	scurvy

- Directions: Question 11 and 12 refer to the bar chart below which shows the daily consumption of animal protein by people of 4 countries (I, II, III and IV):



- 91-11
The daily consumption of fish protein is greatest in
- country I.
 - country II.
 - country III.
 - country IV.

- 91-12
In which country, do dairy products make up the largest proportion of animal protein in the diet of the people?
- country I
 - country II
 - country III
 - country IV

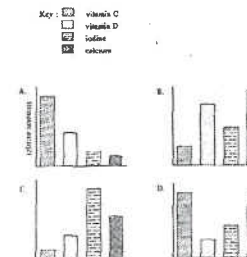
- 91-13
Which of the following foods provides the greatest amount of protein per unit mass?
- spinach
 - potatoes
 - mushrooms
 - soya beans

- 91-37
Which of the following statements concerning a pregnant woman are true?
- She needs more protein in her diet.
 - She needs more calcium in her diet.
 - She needs more iron in her diet.
- (1) and (2) only
 - (1) and (3) only
 - (2) and (3) only
 - (1), (2) and (3)

92.
92-12
Which of the following groups of food has the greatest energy value?

	Carbohydrate (g)	Fat (g)	Protein (g)	Water (g)
A.	80	50	50	120
B.	80	60	50	110
C.	100	60	40	100
D.	120	30	50	100

- 92-17
The following bar charts (A, B, C and D) show the relative amounts of certain food substances taken in daily by 4 different persons. Which person is *least* likely to suffer rickets?



- Directions: Question 21 refers to the following plant product:
- peanuts
 - potatoes
 - rice grains
 - soya beans

92-21

Which type of plant product is best for supplementing the diet of people in poor countries so as to reduce protein deficiency?

- (1)
- (2)
- (3)
- (4)

93.

93-14

The table below shows the amount of certain food substance present in 100g of each of the three kinds of food X, Y and Z:

	Food X	Food Y	Food Z
Proteins (g)	8.3	14.8	3.3
Carbohydrates (g)	55.5	0.01	4.8
Fats (g)	1.7	28.2	3.8
Minerals (mg)	103	14.0	122

Which of the following correctly shows identifies the three kinds of food?

- Food X Food Y Food Z**
- beef bread milk
 - bread beef milk
 - beef milk bread
 - bread milk beef

93-23

The table below shows the daily requirements of certain nutrients and energy for four different types of people, namely 2-year-old children, 35-year old male labourers, 25-year old females and pregnant women:

Which row of information (A,B,C or D) describes the daily requirements for the 2-year old children?

	Daily requirements			
	Proteins (g)	Vitamin D (mg)	Calcium (mg)	Energy (kJ)
A	90	0.0025	500	15100
B	60	0.01	1200	10000
C	44	0.005	500	8400
D	35	0.01	500	5900

94.

Directions:

Questions 9 and 10 refer to the table below which shows the composition of food substances in four vegetables:

	Water (g)	Protein (g)	Fat (g)	Carbohydrate (g)	Calcium (mg)	*Carotene (mg)	Vit. C (mg)
Potato (100g)	79	1.9	0.7	16	11	0.01	18
Soya bean (100g)	70	13.6	5.7	7	100	0.28	25
Spinach (100g)	93	2.0	0.2	2	70	2.96	31
Green pepper (100g)	93	0.9	0	5	7	1.36	105

* Carotene can be converted to vitamin A in the human body

94-9

Vivian, a 6-year-old girl, does not have meat or milk in her diet. Which of the vegetables listed in the table is most important for her growth?

- potato
- soya bean
- spinach
- green pepper

94-10

If Vivian has bleeding gums, which vegetable is most effective in helping her to recover?

- potato
- soya bean
- spinach
- green pepper

95.

95-9

The table below shows the result of an experiment to compare the amount of vitamin C in four juices P, Q, R and S:

Fruit juice	Number of drops used to decolourise 1cm ³ DCPIP
P	20
Q	24
R	40
S	28

Which fruit juice has the highest vitamin C concentration?

- P
- Q
- R
- S

95-13

Poor vision in dim light could be prevented by taking an adequate amount of

- Beef.
- Liver.
- Fresh fruits.
- Potatoes.

96.

Directions: Questions 3 and 4 refer to the information below:

Food tests were carried out on a certain kind of drink. The results are as follows:

	DCPIP test	Biuret test	Benedict's test
Result of the test	Colourless solution	Blue solution	Blue solution

96-3

What can be concluded from the results?

- The drink contains protein.
- The drink contains vitamin C.
- The drink contains protein and reducing sugar.
- The drink contains vitamin C and reducing sugar.

96-4

A patient is recommended to take this drink regularly as a treatment. What disease might he suffered from?

- Anaemia
- Diabetes
- Night-blindness
- Scurvy

96-5

Vegetarians mainly eat plant products. Compared to a diet with meat, a vegetarian diet of the same mass contains.

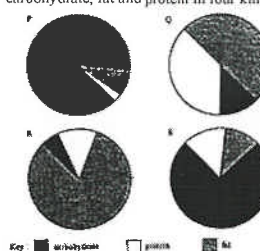
- Less fat.
- More protein.
- More dietary fibre.
- (1) and (2) only
- (1) and (3) only
- (2) and (3) only
- (1), (2) and (3)

96-6

Which of the following is *not* an essential component of the human diet?

- Calcium salts
- Fat
- Nitrates
- Water

Directions: Questions 7 and 8 refer to the pie charts below which show the proportion of carbohydrate, fat and protein in four kinds of diet:



96-7

Which diet provides the greatest amount of energy per unit mass?

- P
- Q
- R
- S

96-8

Which is a balanced diet?

- P
- Q
- R
- S

96-12

In Hong Kong, many school children are overweight because they

- Eat a lot of vegetables.
- Eat a lot of sugary food.
- Do little sport

- (1) and (2) only
- (1) and (3) only
- (2) and (3) only
- (1), (2) and (3)

98.

98-6

Obesity (being very fat) may lead to the following except

- diabetes.
- Liver cancer.
- High blood pressure.
- Coronary heart disease.

Directions: Questions 7 and 8 refer to the table below which shows the composition of food substances in four vegetables:

	Carbohydrate (g)	Fat (g)	Protein (g)	Calcium (g)	*Carotene (mg)	Vitamin C (mg)
Broad bean (100g)	12	0.7	9.0	15	0.15	12
Potato (100g)	16	0.7	1.9	11	0.01	18
Spinach (100g)	2	0.2	2.0	70	2.96	31
Green pepper (100g)	5	0	0.9	7	1.36	105

*Carotene can be converted to vitamin A in the human body.

98-7

Which vegetable listed above has the highest energy value?

- broad bean
- potato
- spinach
- green pepper

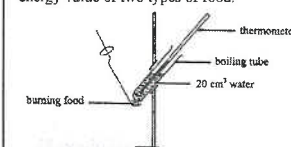
98-8

A person has normal vision in bright conditions but cannot see clearly in dim light. Which vegetable listed above is most effective in helping him to overcome the problem?

- broad bean
- potato
- spinach
- green pepper

99.

Directions: Questions 10 and 11 refer to the following diagram of a set-up used to estimate the energy value of two types of food:



The table below shows the results obtained :

Type of food	Mass of food used (g)	Initial water temperature (°C)	Final water temperature (°C)
Sugar	3	20	60
X	2	20	73

99-10

Food X is mostly likely to be
A. rice.
B. bean.
C. butter.
D. milk powder.

99-11

Which of the following are the possible sources of error in estimating the energy value of food by using the above set-up?

- (1) Heat is lost to the surroundings.
- (2) The food is not burnt completely.
- (3) The mass of food used is not the same.

- A. (1) and (2) only
B. (1) and (3) only
C. (2) and (3) only
D. (1), (2) and (3)

99-12

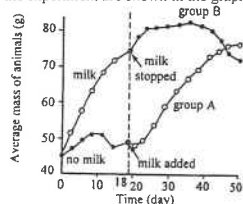
Which of the following food substances is not usually found in pork, milk and egg?

- A. fat
B. protein
C. dietary fibre
D. mineral salt

00.

Directions: Questions 59 and 60 refer to the following information:

In the early 1900s, Frederick Hopkins performed an experiment using rats. He divided young rats from the same litter (developed from a single pregnancy) into two groups. Group A was fed with purified protein, sugar, starch, fat, mineral salts and water. Group B received the same food plus 3 mL of milk each day. After 18 days, group A instead of group B was given the milk. The results of the experiment are shown in the graph below:



00-59

Based on the given information, what do you think was the aim of Hopkins's experiment?

- A. To show that the growth of rats requires protein, carbohydrates, fat, mineral salts, water and vitamins.
B. To show that milk is more important than protein, carbohydrates, fat, mineral salts and water for the growth of rats.
C. To show that milk contains vitamin A which is necessary for the normal growth of rats.

D. To show that milk contains some substances that are essential for the growth of rats.

00-60

In this experiment, Hopkins used rats from the same litter. This was to ensure that at the beginning of the experiment the two groups of rats
A. showed the least variation.
B. were of the same genotype.
C. were of the same phenotype.
D. did not contain vitamin A.

01-7

A student mixed a 0.1% amylase solution with a 1% starch solution. He performed a number of food tests on the mixture immediately after mixing and obtained the following results:

Iodine test	Biuret test	Benedict's test
+	+	--

Key : + positive result
- negative result

If he repeated the food tests on the mixture 10 minutes later, what would be the possible results?

	Iodine test	Biuret test	Benedict's test
A.	+	+	+
B.	-	+	-
C.	-	-	+
D.	+	-	-

01.

Directions: Questions 9 and 10 refer to the table below, which shows the composition of 150 g each of four kinds of food.

Food	Protein (g)	Carbohydrate (g)	Fat (g)	Calcium (mg)	Iron (mg)	Vitamin A (mg)	Vitamin C (mg)
W	40	30	30	324	18	0.03	4.3
X	50	10	40	974	6	0.01	1.9
Y	30	10	60	226	3	0.09	1.5
Z	20	60	20	181	1	0.16	0.2

01-9

Which food has the highest energy value?

- A. W
B. X
C. Y
D. Z

01-10

The haemoglobin content of a person's blood is found to be lower than normal. Which food would be most effective in helping the person to improve this condition?

- A. W
B. X
C. Y
D. Z

02-10

For overweight people, beans are better than eggs and meat as sources of protein because beans contain

- A. less fat.
B. more iron.
C. more amino acids.
D. less dietary fibre.

02-12

Apples are good for our health because they provide

- (1) vitamins.
- (2) minerals.
- (3) dietary fibre.

- A. (1) and (2) only
B. (1) and (3) only
C. (2) and (3) only
D. (1), (2) and (3)

02-29

Which of the following statements about cellulose in plant cells is correct?

- A. It stores energy for the plant cells.
B. It can be stained blue-black with iodine solution.
C. It helps to maintain the shape of the plant cells.
D. It regulates the movement of water in and out of the plant cells.

03-06

When a drop of liquid food was added to a piece of filter paper, a translucent spot appeared and remained after drying. What further step should be carried out in order to determine whether the food contains fat?

- A. Rinse the spot with alcohol.
B. Put the paper under sunlight.
C. Heat the paper over a water bath.
D. Observe the spot again after 30 minutes.

03-12

Given a solution containing starch, lipase and glucose, which of the following tests will give a negative result with this solution?

- A. Benedict's test
B. Biuret test
C. Emulsion test
D. Iodine test

03-15

Some old people suffer from a condition known as osteoporosis in which their bones become porous and brittle. This is due to the loss of a large amount of

- A. iron.
B. calcium.
C. vitamin C.
D. vitamin D.

03-16

If a person suffers from night-blindness and constipation, which of the following foods is most effective for treating these disorders?

- A. ham
B. liver
C. carrot
D. whole meal bread

03-32

A balanced diet helps to prevent

- A. AIDS.
B. anaemia.
C. food poisoning.
D. colour-blindness.

04-12

The diet of many children contains only a small amount of fruit and vegetables. This may lead to

- A. anaemia.
B. constipation.
C. night-blindness.
D. rickets.

04-31

Man and woman differ in their dietary requirement of iron. This is because

- A. man needs more red blood cells.
B. man can store more iron in his liver.
C. woman loses blood in the menstrual flow.
D. the red blood cells of woman have a shorter life span.

04-32

A woman's dietary requirement of calcium increases

- A. during menstruation.
B. in the first week of pregnancy.
C. at the onset of labour.
D. during the breast-feeding period.

05-4

Eskimos are a people living in the Arctic regions. Their diet is rich in fat because

- A. fat is a good insulator of heat.
B. they hunt polar animals for food.
C. fat has a higher energy value than carbohydrate.
D. their alimentary canal is adapted for digesting fat.

Past HKCEE Questions
Food and Humans
Suggested Answers

Paper I

- | | |
|--|---|
| 1. (i) (1) A1, B1, B2 | 3 |
| (2) A4, B4 | 2 |
| (ii) (1) Digestive juice from A can break down proteins molecules. | 1 |
| (2) Digestive juice from B can break down starch into reducing sugar. | 1 |
| (iii) A: Duodenum | 1 |
| Juice from A: Pancreatic juice | 1 |
| B: Mouth Cavity, | 1 |
| Juice from B: Saliva | 1 |
| 2. (i) Minerals | 1 |
| (ii) Rice | 1 |
| (iii) (1) Excess protein is deaminated into urea | 1 |
| by liver | 1 |
| (2) by respiration | 1 |
| using reserved food | 1 |
| (iv) (1) orange provide vitamin C and roughage | 1 |
| (2) scurvy, | 1 |
| constipation | 1 |
| 3. (i) (1) Protein | 1 |
| Fat | 1 |
| (2) excess amino acids will be deaminated | 1 |
| in the liver to form urea for excretion | 1 |
| to form carbohydrate / fat | 1 |
| excess fat is stored | 1 |
| (iii) Milk contains most of the essential nutrients/ milk can be easily taken | 1 |
| (iv) for formation of bone or teeth/ blood clotting | 1 |
| (v) Biuret test | 1 |
| purple colour formed | 1 |
| 4. (i) (1) children, | 1 |
| by calculation : (378 > 162 , 153, 149) children > men > women > pregnant women | 1 |
| (2) children need to maintain a higher metabolic rate in order to support greater growth / muscular /compensate for the higher rate of heat loss | 1 |
| (ii) men require less vitamin D than children | 1 |
| because they have already well developed bones/ teeth | 1 |
| (iii) pregnant women | 1 |

Past HKCEE Questions

Food and Humans

82

- | | |
|---|---|
| (iv) for the growth of the foetus /embryo women require more iron than men for the formation of red blood cells in the blood which is lost periodically (during menstruation) | 1 |
| 5. (i) (1) iron | 1 |
| (2) symptoms associated with anaemia | 1 |
| (ii) 1700 cm ³ | 1 |
| (iii) in human milk, more vitamins good for general health | 1 |
| prevents deficiency diseases | 1 |
| (iv) in cow's milk, more protein for the production of protoplasm / body growth | 1 |
| more calcium and / or phosphorus for the growth of bones and teeth | 1 |
| 6. (i) Age | 1 |
| Sex | 1 |
| (ii) Age between 16 and 18 | 1 |
| They are growing actively | 1 |
| (iii) The readings would be higher As more energy will be required to maintain their body temperatures during winter | 1 |
| (iv) His weight will decrease / he will become thinner | 1 |
| 7. (i) (1) dietary fibre | 1 |
| (2) It adds bulk to food promotes peristalsis of the intestine and prevents constipation | 1 |
| (ii) (1) Milk chocolate contains large proportion of energy-rich food substances/carbohydrates/fat | 1 |
| If the energy intake of the child is greater than the energy needed. | 1 |
| The excess energy-rich food substances will be stored in the body as fat | 1 |
| which leads to overweight | 1 |
| (2) Milk chocolate contains high proportion of carbohydrates/it sticks easily to the tooth surface | 1 |
| Sugars in the chocolate are broken down by the bacteria in the plaque | 1 |
| To form acid which dissolves the enamel and causes tooth decay | 1 |
| Communication Skill (C) | 1 |
| (iii) Food from animals is rich in protein | 1 |

P. 10 / 12

- | | |
|---|---|
| which is necessary for the growth of the child | 1 |
| 8. (i) * chlorophyll | 1 |
| (ii) to remove the residue / green chloroplasts | 1 |
| so that results / any colour changes of subsequent food tests can be easily observed | 1 |
| (iii) *cellulose | 1 |
| it increases the bulk of the indigestible material and stimulates the muscular movements along the alimentary canal / peristalsis | 1 |
| to prevent constipation | 1 |
| (iv) The presence of reducing sugar is shown by the formation of orange precipitate in the Benedict's test | 1 |
| The presence of vitamin C | 1 |
| is shown by the decolorization of the DCPIP solution | 1 |
| 9. (i) The formation of red precipitate indicates the presence of reducing sugar (glucose) in the water | 1 |
| This shows that the dialysis tubing is permeable to glucose / permits the diffusion of glucose into the external solution | 1 |
| (ii) (1) Increased amount of precipitates in set-up A indicates the presence of more reducing sugar which comes from the hydrolysis / break down of starch catalysed by the amylase / enzyme in digestive juice X | 1 |
| (2) * saliva / salivary juice | 1 |
| * pancreatic juice | 1 |
| (iii) Any 3 below: | 3 |
| • The knot of the dialysis tubing should be tied tightly | |
| • The outside of the dialysis tubing should be rinsed with distilled water before immersing into the water. | |
| • After putting in the dialysis tubing, the water in the boiling tube should be tested for the presence of reducing sugar immediately. | |
| • The digestive juice X should be tested for the presence of reducing sugar. | |
| • The dialysis tubing should be examined for any damage. | |
| • The volume of distilled water in the boiling tube should be the same. | |

Past HKCEE Questions

Food and Humans

88

- | | |
|--|-----|
| 10. (i) The daily energy intake of Jane is 6620 kJ | 1 |
| which is less than her daily energy requirement | 1 |
| Thus she has to consume / mobilize the fat / food reserve in her body leading to a loss in her body weight | 1 |
| Effective communication (C) | 1 |
| (ii) Amino acids are broken down in the liver | 1 |
| to form carbohydrate / a part without nitrogen (and urea) | 1 |
| which will be oxidized/used in respiration to release energy | 1 |
| (iii) anaemia | 1 |
| (iv) Any one set below (1+1+1) | 3 |
| • Rub a piece of ham on a filter paper. | |
| • A translucent spot will remain after drying | |
| • Immerse the paper in an organic solvent and the spot will disappear | |
| OR | |
| • Add alcohol to a piece of ham and obtain a clear solution | |
| • Add water to the clear solution | |
| • The solution will turn milky. | |
| 11. (a) any 2 sets | 2x2 |
| A vegetarian diet has low fat content | |
| This will reduce the risk of obesity / heart diseases. | |
| or | |
| A vegetarian diet has a high content of dietary fibre | |
| This helps maintain normal peristalsis / prevent constipation / reduce the risk of colon cancer / avoid overeating | |
| or | |
| A vegetarian diet has a high vitamin C content | |
| This helps the formation of connective tissue / prevent scurvy | |
| (b) beans / peas / nuts / mushroom | 1 |
| 12. (i) Whole milk has more fat than fat-free milk | 1 |
| Presence of fat slow down the digestion of carbohydrates | 1 |
| and hence a slower absorption of glucose | 1 |
| (ii) Diabetics cannot lower their blood glucose level if it is too high | 1 |
| Oatmeal has a low GI value / causes a slow rise in blood glucose level | 1 |
| Therefore, oatmeal is better than cornflake | 1 |

P. 11 / 12

- (iii) The overall energy intake should be less than the overall energy expenditure
 so that the food reserve will be mobilized and used
 The diet should contain sufficient amount and types of nutrient
 for proper functioning of the body

1
1
1
1

Paper II

90-9	B
90-12	D
91-10	A
91-11	A
91-12	D
91-13	D
91-37	D
92-12	C
92-17	B
92-21	D
93-14	B
93-23	B
94-9	B
94-10	D
95-9	A
95-13	B
96-3	B
96-4	D
96-5	B
96-6	C
96-7	C
96-8	D
96-12	C
98-6	B
98-7	A
98-8	C
99-10	C
99-11	A
99-12	C
00-59	D
00-60	A
01-7	A
01-9	C
01-10	A
02-10	A
02-12	D
02-29	C
03-06	A
03-12	C
03-15	B
03-16	C
03-32	B
04-12	B
04-31	C
04-32	D
05-4	B