GCSE Food Preparation and Nutrition Core Questions

Set 1: Principles of Nutrition

Area	Question Numbers
Overview	1 – 5
Carbohydrates	6 – 19
Proteins	20 – 35
Fats	36 - 49
Vitamins	50 - 64
Minerals	65 – 70
Trace elements	71 - 73
Dietary fibre	74 - 82
Water	83 - 87

Q No.	Question	Answer
1.	Define the term nutrient.	The chemicals found in food which give the body nourishment and are needed to maintain life.
2.	Define the term macronutrient.	A class of nutrients which the body requires in large amounts – measured in g (gram).
3.	What are the three groups of macronutrients?	Carbohydrates, proteins and fats.
4.	Define the term micronutrient.	A class of nutrients which the body requires in small amounts – measured in mg (milligram) or μg (microgram).
5.	Other than nutrients, what else does the body need?	Water and fibre.
6.	What is the function of carbohydrates in our diet?	For energy.
7.	What process in plants produces energy from water and carbon dioxide?	Photosynthesis.
8.	What type of carbohydrate are the simple sugars glucose and fructose?	Monosaccharide.
9.	Sucrose is an example of what type of carbohydrate, made from two sugar molecules joined together?	Disaccharide.
10.	Name the three types of polysaccharide.	Starch, and the non-starch polysaccharides, pectin and cellulose.
11.	What other nutrients do starchy carbohydrates provide the body with?	Protein, calcium, iron, B vitamins and fibre.
12.	Why is sugar sometimes referred to as “empty calories”?	It has no nutritional value other than providing energy.
13.	What health conditions can a diet high in sugar cause?	Obesity, type 2 diabetes, heart disease, some cancers and tooth decay.
14.	What are the effects of eating too much carbohydrate?	Excess carbohydrates are stored as glucose in the liver and muscle cells and eventually converted into fat cells.
15.	What are the effects of eating too little carbohydrate?	Short term: feeling hungry, weak or tired. Longer term: stored fats and eventually protein is digested to provide energy.

GCSE Food Preparation and Nutrition Core Questions

Set 1: Principles of Nutrition

6.	Why do starchy foods make a better energy source than sugar?		Energy is released more slowly and steadily from starch foods as they contain slow release carbohydrate, whereas sugars are fast release carbohydrates.
7.	What fraction of the diet should be from starch carbohydrates?		1/3.
8.	What are intrinsic and extrinsic sugars.		Intrinsic sugars are found naturally in foods, such as fruit. Extrinsic sugars are added to food.
9.	What is the maximum amount of sugar recommended for children aged 4-6, 7-10 and adults and children over 11?		4-6 – 19g 7-10 – 24g Adults and children over 11 – 30g
	What are the three main functions (other than to provide energy) of proteins.		Growth, repair and maintenance of cells.
0.	What are the main animal sources of protein in our diet?		Meat, dairy, fish, eggs.
1.	What are the main plant sources of protein in our diet?		Cereals, nuts, pulses and seeds.
2.	What are proteins made of?		Amino acids.
3.	What are essential amino acids.		Amino acids which our bodies cannot manufacture, so we must get them through our diet.
4.	Name two essential amino acids.		Histidine, isoleucine, lysine, leucine, methionine, phenylalanine, threonine, tryptophan, valine.
5.	What are non-essential amino acids.		Amino acids we can make inside our bodies.
6.	Name two non-essential amino acids.		Alanine, asparagine, aspartic acid, glutamic acid.
7.	What are HBV proteins?		High Biological Value proteins – they contain all the essential amino acids.
8.	Which foods contain HBV proteins?		Animal sources of protein as well as meat substitutes (tofu, Quorn and TVP) and the cereal quinoa.
9.	What are LBV proteins?		Low Biological Value proteins – they contain some, but not all the essential amino acids.
0.	Which foods contain LBV proteins?		Seeds, nuts, beans, legumes and cereals.
1.	What are the dietary reference values for proteins for the following ages of people?	1-3 year olds	15g
		4-6 year olds	20g
		7-10 year olds	28g
		11-14 year olds	42g
		15-50 year olds	55g
		Over 50s	53g
2.	What are the consequences of not eating enough protein (malnutrition)?		Wasting of muscle tissue, oedema (fluid retention, mainly in feet and ankles), anaemia, slow growth, kwashiorkor
3.	What is kwashiorkor?		A severe case of lack of protein in the diet as a result of starvation – fluids build up in the stomach (oedema), causing a pot belly, fragile bones and failure to grow.

GCSE Food Preparation and Nutrition Core Questions

Set 1: Principles of Nutrition

34.	What does the term complementary proteins mean? Give an example.	When we combine two or more LBV protein foods, so that all the essential amino acids are consumed. Examples: beans on toast, pitta and hummus, dhal and rice.
35.	Other than providing energy what functions do fats perform in the body?	1. Insulates the body. 2. Protects the vital organs 3. Carries fat-soluble vitamins (A, D, E & K) into the body. 4. Used in producing hormones. 5. Contains essential fatty acids which the body needs to grow and function.
36.	What are the two main types of fats?	Saturated and unsaturated.
37.	What are the health risks associated with saturated fats?	Can raise blood cholesterol leading to coronary heart disease.
38.	What foods contain saturated fats?	Lard, butter, full fat dairy foods, the visible fat on meat, processed foods, including sausages, burgers, pastries, cakes and biscuits. Also block margarine, palm oil and coconut oil.
39.	Why are unsaturated fats healthier for us?	They promote the healthier type of cholesterol (HDL)
40.	What foods are monounsaturated fats found in?	Olive and rapeseed oils, almonds, hazelnuts, peanuts and avocados.
41.	What foods are polyunsaturated fats found in?	Sunflower, corn, soya and sesame oils, whole grains and seeds, nuts, fruit and vegetables.
42.	What are essential fatty acids.	Substances in fats which are needed in the body, but which the body cannot make enough of.
43.	Name two essential fatty acids.	1. Omega-3 2. Omega-6
44.	In which foods is each found?	1. Omega-3 – oily fish (salmon, herring, mackerel, trout, sardine), walnuts, soya and rapeseed oils. 2. Omega-6 – poultry, eggs, nuts cereals, vegetable oils.
45.	What are the health benefits of Omega-3.	Omega-3 – prevents blood from clotting, keeps the heart rhythm regular and improves our chances of survival after a heart attack.
46.	What fraction of our energy should come from fat?	1/3.
47.	What are the consequences of a diet too low in fat?	May develop vitamin deficiency of the fat-soluble vitamins A, D E and K.
48.	What are the risks of a diet that is too high in fat?	The body will gain weight. Extra fat is stored in fat cells and if it is saturated fat it can lead to an increased risk of heart disease.
49.	What are vitamins?	Vitamins are essential nutrients the body needs in tiny amounts (mg or μg) in order to function properly.
50.	Which vitamins are fat soluble?	Vitamins A, D, E and K.

GCSE Food Preparation and Nutrition Core Questions

Set 1: Principles of Nutrition

51.	Which food supply us with fat-soluble vitamins?	Fatty foods and animal products (dairy, eggs, liver, oily fish, vegetable oils)
52.	Why don't we need to eat fat-soluble vitamins every day?	They can be stored in the liver and fatty tissue.
53.	Which vitamins are water soluble?	B Vitamins and vitamin C.
54.	Which food supply us with water-soluble vitamins?	Fruit, vegetables, dairy and cereals.
55.	How can we prevent the loss of water-soluble vitamins in food preparation?	1. Limit the amount of water used in cooking vegetables, e.g. steaming. 2. Using cooking liquid to make sauces. 3. Eating vegetable raw.

	Group	Micro-nutrient	Function in the diet	Main sources	Consequences of malnutrition – under	Consequences of malnutrition – over
56.	Fat-soluble vitamins	Vitamin A	• Keeps the immune system healthy. • Helps us see in the dark.	• Dairy, eggs, oily fish. • Yellow, red and leafy vegetables. • Yellow fruit.	• Night blindness • Reduce ability to fight infections • Limit growth in children	• Reduced bone health • Birth defects.
57.		Vitamin D	• Strong bones and teeth.	• Oily fish, eggs, liver, fortified foods. • Sunlight.	• Rickets	• Hypercalcaemia
58.	Water-soluble vitamins	Vitamin B1 (Thyamine)	• Releases energy from carbs • Keeps nervous system healthy • Helps growth in childhood	• Red meat, liver • Whole grain cereals • Yeast & yeast extract • Dairy products • Eggs • Fresh and dried fruits • Seeds, nuts and beans • Fortified breakfast cereals and wheat products	• Beri beri – a muscle wasting disease – in developing coumtries where white rice is a staple food. • Beri-beri in alcoholics	• Headaches and insomnia.
59.		Vitamin B2 (riboflavin)	• Releases energy from food • Keeps eyes, skin and nervous system healthy • Helps growth in childhood	• Red meat • Yeast & yeast extract • Dairy products • Eggs • Rice • Mushrooms • Fortified breakfast cereals and wheat products	• Swollen tongue, dry skin, sores around mouth	• Rarely can increase risk of kidney stones
60.		Vitamin B3 (Niacin)	• Releases energy from food • Keeps skin and nervous system healthy	• Red meat • Whole grain cereals • Yeast & yeast extract • Dairy products	• Rarely, pellagra	• Over a long period can lead to liver damage

	Water-soluble vitamins		• Helps lower level of fat in blood	• Eggs • Seeds, nuts and beans • Fortified breakfast cereals and wheat products		
61.		Vitamin B12 (Cobalamin)	• Making red blood cells • Keeping nervous system healthy • Releasing energy from food • Processing folic acid	• Liver, meat • Fish • Milk, cheese • Eggs • Fortified breakfast cereal • yeast	• Pernicious anaemia • Fatigue and depression • Long term deficiency can damage the brain and nervous system • Vegans must supplement their diet	• No toxic side effects
62.		Vitamin B9 (Folic acid)	• Releasing energy from food (protein)With vitamin B12 helps for red blood cells • Reduce development of spina bifida in babies	• Green leafy veg • Liver • Potatoes • Beans, seeds, nuts • Whole grain cereals • Oranges, berries, yeast extract	• Can cause spina bifida in the unborn child • Type of anaemia	• Stomach problems, trouble sleeping, skin reactions
63.		Vitamin C	• Helps the body absorb iron • Needed to make collagen (in whole body – provides strength and structure in bones, muscles, skin and tendons). • Prevents infections • Helps heal wounds	• Fruits, especially citrus fruits • Dark green vegetables • Potatoes	• Scurvy (very rare now) – bleeding gums, wounds not healing and tiredness. • Iron deficiency anaemia	• Passed out in urine.
64.	What are minerals?			Minerals are micronutrients the body needs in tiny amounts (mg or μg) in order to function properly.		
	Group	Micro-nutrient	Function in the diet	Main sources	Consequences of malnutrition - under	Consequences of malnutrition - over
65.	Minerals	Calcium	• To form and strengthen bones and teeth • For blood clotting	• Dairy • Green, leafy vegetables • Bread – white flour and its products must, by law, be fortified with calcium	• Rickets • Osteoporosis	• Stomach pain and diarrhoea • Calcium build up in the kidneys can be fatal

GCSE Food Preparation and Nutrition Core Questions

Set 1: Principles of Nutrition

				• Whole grain cereals • Fish with edible bones		
66.		Iron	• Helps make haemoglobin in red blood cells, which carries oxygen around the body	• Red meat and offal • Whole grain cereals • Green leafy vegetables • Fortified breakfast cereals	• Anaemia- symptoms are being tired, weak and pale	• Constipation, vomiting, nausea, constipation
67.		Potassium	• Helps to build strong bones • Important for energy release and other metabolic processes	• Fruit and vegetables • Pulses, nuts and seeds • Fish, shellfish • Beef • Chicken, turkey	• Diarrhoea • Heart failure	• Stomach pain, nausea, diarrhoea
68.		Magnesium	• Bone development • Helps nervous system work properly • Important for energy release	• Meat • Fish • Dairy • Nuts, seeds • Whole grain cereals • Green leafy vegetables	• Nausea, loss of appetite, vomiting, fatigue • May cause high blood pressure and heart disease	•
69.	What does the term complementary action of nutrients mean? Give an example.			Some nutrients work together to improve the way the nutrients are absorbed. Eg - Vitamin C and iron are complementary – a bowl of cereal topped with fruit. Eg – vitamin D helps us absorb calcium – macaroni and cheese		
70.	What are trace elements?			Micronutrients which are needed for the body to function properly, but in much smaller amounts than vitamins and minerals.		
	Group	Micro-nutrient	Function in the diet	Main sources	Consequences of malnutrition - under	Consequences of malnutrition - over
71.	Trace elements	Iodine	• Helps make the thyroid hormone which controls growth	• Sea fish, shellfish, seaweed • Dairy • Plant foods	• Goitre – enlargement of the thyroid gland	• Can affect the growth
72.		Flourine	• Helps harden tooth enamel, preventing tooth decay	• Tea • Fish • Vegetables • Added to drinking water in some parts of the UK and to toothpaste	• Tooth decay	• Discolouration of teeth
73.	Dietary fibre is also called NSP. What does this stand for?			Non-starch polysaccharide.		
74.	What does the term insoluble fibre mean?			It is not digested and absorbed by the body but passes through as roughage.		

75.	What is a possible health benefit of soluble fibre?	It may help reduce the level of cholesterol in the blood and guard against coronary heart disease.
76.	Why do we need dietary fibre?	1. It makes us feel fuller for longer. 2. It keeps the bowel healthy and makes stools easier to pass. 3. Prevents constipation, haemorrhoids (piles), diverticulitis, some cancers, type 2 diabetes.
77.	What are the possible effects of too little fibre in the diet?	Constipation, haemorrhoids, diverticulitis and cancer.
78.	What are the possible effects of too much fibre in the diet?	Feeling bloated, having stomach cramps or flatulence. Can deprive the body of some minerals and may lead to diarrhoea.
79.	What is the recommended fibre intake for: a) children aged 2-5, b) children aged 5-11, c) children aged 11-16 and d) adults and children over 11?	a) 15g b) 20g c) 25g d) 30g
80.	What are the sources of insoluble fibre in the diet?	Whole grain cereals, wholemeal bread, fruit and vegetables.
81.	What are the sources of insoluble fibre in the diet?	Oats, barley, rye, most legumes, fruit and root vegetables.
82.	List three functions of water in the body.	1. Transporting nutrients in the blood. 2. Removing waste products. 3. Regulating body temperature (sweating) 4. Helping digestion and preventing constipation 5. Acting as a lubricant and shock absorber in our joints.
83.	Where do we get water in our diet?	Water, all other fluids – milk, tea, coffee, soup, juice, soft drinks.
84.	How much water do we need in our diet?	Depends on body size, metabolism, climate, the food we eat and our activity levels.
85.	What happens if we consume too little water?	• Dehydration – thirst, dry sticky mouth, tiredness, dizziness, losing concentration and headaches. • Can increase the risk of kidney stones and bladder infections.
86.	What happens if we consume too much water?	• Very rare, but can cause hyponatremia, which can lead to seizures and coma.