GCSE (9–1)

Food Preparation and Nutrition

J309/01: Food preparation and nutrition

General Certificate of Secondary Education

Mark Scheme for June 2019

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This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which marks were awarded by examiners. It does not indicate the details of the discussions which took place at an examiners' meeting before marking commenced.

All examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the report on the examination.

Annotations

Annotation	Meaning
L1	Level 1
L2	Level 2
L3	Level 3
SEEN	Noted but no credit given
	Tick
BP	Blank page
REP	Repeat
BOD	Benefit of the doubt
	Incorrect/No credit given

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<table>
<tr><th colspan="3">Question</th><th colspan="2">Answer</th><th>Mark</th><th>Guidance</th></tr>
<tr><td>1</td><td>(a)</td><td>(i)</td><td colspan="2">• Energy/secondary source of energy
• Growth
• Repair</td><td>2</td><td>2 x 1 mark
Do not accept - body building/growth of muscles</td></tr>
<tr><td>1</td><td>(a)</td><td>(ii)</td><td colspan="2">• High biological value proteins contain all the essential amino acids - low biological proteins are missing at least one essential amino acids
• High biological value proteins are found in animal foods and soya products - low biological proteins are found in vegetable foods.</td><td>2</td><td>1 x 2 marks

Must state ‘all the essential’

For two marks to be awarded the candidates must refer to both high and low biological value proteins.</td></tr>
<tr><td>1</td><td>(b)</td><td></td><td>Micronutrient</td><td>Function of the micronutrient</td><td>4</td><td>4 x 1 mark

Nutrient and functions must match

Do not have to write the word vitamin - can just say B1/B2/B3/B12.

Do not accept - B alone.</td></tr>
<tr><td></td><td></td><td></td><td>Vitamin B1/ Thiamine</td><td>• Helps body to grow
• Normal function of nervous system
• Releases energy from carbohydrates</td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td>Vitamin B2 / Riboflavin</td><td>• Healthy skin
• Normal / structure of mucous membranes
• Normal growth
• Releases energy from carbohydrates
• Transport / metabolism of iron</td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td>Vitamin B3 / Niacin</td><td>• Healthy skin / mucous membranes / nerves
• Metabolism growth
• Release of energy</td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td>Vitamin B12 / cobalamin</td><td>• Energy production
• Formation of red blood cells
• Normal functioning of nervous system</td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td>Vitamin D</td><td>• Enables calcium absorption
• Helps calcium to be deposited in bones and teeth</td><td></td><td></td></tr>
</table>

			Iron	• Carry Oxygen in the blood • Prevents anaemia • Production of haemoglobin(in red blood cells)		
			Phosphorus	• Energy production • Muscle function • Strong / hard bones and teeth • Works with calcium		
1	**(c)**		• Add colour • Add flavour/seasoning/spices/improve taste • Adds moisture/prevents drying • So the meat is more tender/softens(when it is cooked)		2	2 x 1 mark
1	**(d)**		• **Appetising smell is produced** - volatile / aromatic substances are released • **Changes colour /from red to brown /pink to white -** changes in myoglobin / brown colour develops above 65ºC/with heat. • **Fat melts (in dry methods of cooking) -** keeps lean meat moist / fat content is reduced in dry methods of cooking. • **Fat melts (moist methods of cooking) -** will rise to the top of the dish • **Meat juices are squeezed out** - as protein / collagen contracts / nutrients in juices are lost / meat loses weight / juices go into the gravy in moist methods of cooking • **Texture changes / becomes firmer / muscle fibres shrinks** - protein coagulates / above 50 ºC • **Bacteria killed-** high temperatures kill bacteria. • **Makes it more tender –** easier to chew/digest.		2	2 x 1 mark 1 mark for statement and one mark for the explanation. Statements are in bold, explanations unbold.

Question			Answer	Mark	Guidance	Level of response
2*			*Production of Fairtrade products benefits the food producers and their workers, the local community and the environment.* **<u>Food Producers/Workers</u>** **Fairer trade for producers/ addresses injustices of trade** - traditionally the poorest weakest workers discriminated against /exploited. Ensures workers and producers receive fair price for products and labour. **Allows a producer to improve their standard of living** – have more control over their lives/decent working and living conditions/feel secure. **Fair terms of trade for producers/farmers and workers** – requiring companies to pay sustainable prices (which must never fall lower than the market price). Better and fairer prices for crops and labour. **Improved working conditions** – related to age of workers/amount of time they work/conditions in factories/on farms / have a say in how the work place is run. **Protect workers' basic rights** – health & safety standards, no discrimination, no bonded or illegal child labour. **Tackle poverty –** producers get better prices for their products / fair stable price ,this is passed onto workers who get better pay. **Women workers –** empowerment/equality **Producers/farmers have access to training -** resulting in higher production levels/profit. **Regular work/regular income –** covers cost of living/workers feel secure/content.	12	To be awarded marks in band three candidates must make reference to food producers and their workers, the local community and the environment. **No ticks** **Level of response annotation** in left hand column at end of answer	**Band 3 (9–12 marks)** An excellent well-balanced answer showing thorough understanding and the ability to analyse and evaluate how production of Fairtrade products benefits food producers and their workers, the local community and the environment. There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated. **Band 2 (5–8 marks)** A good well-balanced answer showing good knowledge and clear understanding. There may be an attempt to analyse and/or evaluate how the production of Fairtrade products benefits food producers and their workers and/or the local community and/or the environment. There is a line of reasoning presented with some structure, which is in the most part relevant. **Band 1 (1–4 marks)** Some demonstration of knowledge and/or understanding of how the production of Fairtrade products benefits food producers and/or their workers and/or the local community and/or the environment.

			Community/Environment **Encourages modern farming methods**- improve soil fertility/ preserve valuable ecosystems/limits the use of harmful chemicals / management of water. **Environmentally friendly farming-** using fewer chemicals and effective irrigation. **Better for the environment -** supports sustainable practices /farming that minimises our environmental footprint/damage to the environment. **Fairtrade premium paid-** Premium pay means costs are covered and some left over to invest in local community projects/ education/ health. **Community involved –** in the decisions about farming/production/sales/investments. **Place/time/resources to grow crops for own consumption**- providing food for family/community. **Improved local facilities** – money given to local projects linked to health, education, housing. **Local sustainability issues.** Education/training enables crops to be continued to be grown/do not fail/crop rotation/farming methods. **Access to training-** providing education. **Establishing cooperatives –** whole community have an investment/interest in the work. **Some foods are considered to taste better / fresher as produced in small quantities** – producers/farmers are involved and invested in the entire production process. More sustainable profit= stable community.			The information is basic and communicated in an unstructured way. The information is supported by limited evidence and the relationship to the evidence may not be clear. **0 Marks:** no response worthy of credit

Question			Answer	Mark	Guidance
3	(a)		• **Air is beaten into the mixture** - to form an air-in-fat foam. • **The fat is broken down into smaller particles by the sugar grains / crystals** - air is then trapped.	2	1 x 2 marks **Either** of the two statements with explanation for two marks. Statements are in bold.
3	(b)		• By adding raising agent /SR flour **creates carbon dioxide/air bubbles/gas** • **Air / steam / carbon dioxide expand when heated** causing the cake to rise/gases from raising agent. • Fat melts and is **absorbed by the starch / flour.** • **The proteins** (in the egg and flour/gluten) **coagulate**/ set mixture in risen state/structure. • Sugar melts /forms syrup that **softens gluten.** • The cake browns due **maillard reaction/dextrinization.**	4	2 x 2 marks **Must** show scientific knowledge/**must** explain the change. Scientific knowledge shown in bold.
3	(c)		• Even texture / airy texture / small and even air bubbles • Golden (brown) colour • Light (texture) • Moist • Straight sides • Sweet • Well risen / good volume / even rising / level top • Two even layers • Little or no crust	2	2 x 1 mark Do **not** allow: • Fluffy or fluffy sponge. • Air bubbles/holes without qualification of 'small/even'. Allow 1 mark for 'light' if given as 'light and fluffy'.
3	(d)		**E.g.:** Nuts / chocolate / 100s and 1000s / sweets / chocolate vermicelli /Icing / butter cream / fondant icing /Icing techniques / fruit / chocolate curls / moulded decorations / edible flowers / icing sugar dusting / frosting/Birthday numbers/special occasion decoration e.g. Christmas/anniversary.	3	3 x 1 mark Accept 3 different acceptable ways to decorate top or sides of a Victoria sandwich. Do **not** credit a filling as this is not a decoration.

Question			Answer	Mark	Guidance
4	(a)	(i)	• Banana / plantain • Bread / any named bread • **A named cereal** e.g. oats /noodles / bulgar wheat / semolina /pearl barley / buck wheat /quinoa • Couscous • Pasta / named type of pasta • Polenta • Potatoes / sweet potato / yams • Pulse vegetables / peas / beans / lentils • Rice • Parsnip / pumpkin / butternut squash / maize(corn)	3	3 x 1 mark **Must** state a food do **not** accept whole grains on its own. Do **not** accept– cakes /pastry/biscuits as not good sources. Breakfast cereals – can accept porridge oats but **no other** as many are not good sources.
4	(a)	(ii)	• **Broken down slowly** therefore provides slow release energy. • **Provide a full feeling** - adds bulk to our diet/higher in fibre . • **Provides energy over a long period of time** provides slow release energy. • **Take longer to digest -** than sugars .	2	1 x 2 marks Can mix and match One statement =1 mark One explanation=1 mark c Statements are in bold.
4	(b)		• **Amount of food we eat balances** - with the amount of energy we use • **If the amount of food consumed is greater than the energy used** - then weight increases • **If the amount of food consumed is less than the energy used -** then weight is lost • Relation between **intake** of food/calories and **output** of work /energy	2	1 x 2 marks
4	(c)	(i)	• Rate at which the body uses energy/calories when you are resting • The energy required for basic bodily functions e.g. breathing , heart beating etc/calories required to keep body functioning.	1	1 mark
4	(c)	(ii)	• Measurement/amount/level of the energy used for all activities/movement (other than basic body functions) • Way to express a person's daily physical activity as a number	1	1 mark

Question			Answer	Mark	Guidance
5	(a)		**Mashed potato** • Bubble and squeak • Croquettes • Fish pie • Potato cakes • Potato scones • Rissoles • Scones • Shepherd's / cottage pie • Fish cakes **Cooked peas and green beans** • Curry • Pasta bake • Pasta Salad • Pie • Risotto • Samosa • Soup **Cooked chicken** • Caesar salad / chicken salad • Chicken and pasta bake / salad • Chicken curry • Chicken pie / pasties • Chicken risotto • Chicken sandwich / wrap • Chicken soup • Chicken stew / casserole • Chicken Stir-fry • Coronation chicken	3	3 x 1 mark Do **not** accept the same dish twice. Accept any **named dish** which uses the food in the question. Do **not** allow name of leftover food being added to a meal e.g. • Roast dinner with peas and beans • Sausage with mash potatoes • Salmon and beans

Question			Answer	Mark	Guidance	Level of response
5	(b)*		*Ways consumers could **reduce** the amount of their food waste.* **Check date marks on food /use /understand date marks** • using up the oldest food first in the fridge / freezer . • if not going to be used within date - use them in meals / make dishes and freeze them for later . • check dates when shopping to make sure they won't go out of date before you plan to use them. **Plan meals:** • so you can make a shopping list and buy only what is needed. • make dishes everyone likes - can use less food than cooking several different dishes. • Check on who is going to be in for meals - so you don't make too much. • Avoid cooking too much food for the number eating the meal - weigh out portions to help. **Shopping for food:** • avoid buying special offers e.g. one get one free (BOGOF) - as these encourage wastage if the second item is not needed. If you do buy ensure the second item is stored second item or can store / freeze it.	8	Do **not** accept any reference to reusing/leftover food as this is given in the question. Question asking how to reduce food waste, not what can be done with food that could go to waste. **Do not accept** Foodbanks Feeding pets Compost Feeding homeless Donations etc. **No ticks** **Level of response annotation** in left hand column at end of answer	**Band 3 (6–8 marks)** There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated, clearly explaining how other than reusing food consumers can reduce their amount of food waste. Specialist terms are used appropriately and correctly. **Band 2 (3-5 marks)** There is a line of reasoning presented with some structure that is in the most part relevant and supported by some evidence explaining how other than reusing food consumers can reduce their amount of food waste. There will be some specialist terms used although these may not always be used appropriately. **Band 1 (1-2 marks)** The information is basic and communicated in an unstructured way. The candidate shows limited knowledge/understanding of how other than reusing food consumers can reduce their amount of food waste. Answers may be ambiguous or disorganised. **(0) marks**: no response worthy of credit

			• avoid panic buying due to weather forecast / media reports on food shortages / scares - relevant examples. • Avoid buying large packs of food because it seems better value - if it is not all going to be used. Could freeze excess if suitable. • Shop on-line - less tempting to overstock, buy on impulse. • Check sizes / portions / pack size of food so you don't overbuy . **Correct storage of food** - read labels to store correctly /rotate so nothing goes out of date before it can be used. **Freeze leftovers** so it can be used for another day. **Use gluts of fruits** etc. to produce preserved products.			

Question			Answer	Mark	Guidance
6	(a)		• Fibre • Iron • Vitamin C / ascorbic acid	2	2 x 1 mark
	(b)		• **Add salad / tomatoes** to cheese sandwich • **Change butter** to vegetable / low fat spread • **Change chips** to jacket potato / salad / vegetables • **Change crisps** to unsalted nuts / raw fruit or vegetables / dried fruit • **Remove crisps from packed lunch** • **Change biscuits** to a healthy snacks e.g. unsalted nuts / raw fruit or vegetables / dried fruit • **Change fizzy drinks** to water / milk / low sugar drinks / low calorie • **Change squash** to fresh orange/ smoothie • **Change white bread** to **wholemeal** bread • **Pizza -** add extra vegetables to the topping / serve with vegetables or salad • **Change doughnut** to fresh fruit or vegetables, named product lower in calories / lower in sugar/ museli bar.	3	3 x 1 mark Candidates **must** make it explicit the foods which are being changed. Do **not** accept the same answer twice. Do **not** accept brown bread
	(c)		• Cost of meat is expensive • Health reasons / medical reasons / reduce animal fat/ cholesterol /maintain healthy weight • Do not like (the taste/ texture of) meat • Environmental reasons/better for the environment - amount of land required to produce meat • Family traditions/parental preference • Food scares e.g. BSE • Moral reasons /ethical reasons/ wrong to kill animals / concerned about animal welfare / animal production systems • Peer pressure / Media pressure/trend • Religious reasons / Buddhist / Hindu / Sikh • Wide range of vegetarian product available	3	3 x1 mark Do **not** accept to lose weight.

Question			Answer	Mark	Guidance
7	(a)		• Stick blender / blender / hand blender/Immersion blender • **Electric** (hand) whisk • Food processor	3	3 x 1 mark
	(b)		• Easy to digest/protein unlikely to overcook • Food is light in texture • No added fat/healthier than frying/roasting • Retains nutrients found in foods/less loss of nutrients • Saves fuel as several products can be steamed at once • Wide range of foods can be steamed	4	4 x 1 mark Do **not** allow faster/quick/easy.
	(c)		• **Amount of time available / time of day -** linked to work / family commitments / choice of quick methods of cooking instead of longer methods or longer complex methods. • **Cultural traditions/family traditions** -methods of cooking linked to culture ,religion / traditional cooking equipment linked to different cultures. • **Energy conservation -** energy is expensive for many /use of whole oven • **Equipment facilities available -** relevant example given • **Health reasons** - reducing fat choosing to grill instead of fry / steaming - not addition of fat. • **Media / publicity of dishes -** increase in number of TV chefs / books / media / apps • **Sensory qualities wanted -** clearly links a sensory quality with a method of cooking • **Type of food being cooked -** some foods not suitable for some methods of cooking / relevant examples given	4	2 x 2 marks

Question			Answer	Mark	Guidance
8	(a)		**Two year old** • Semi skimmed • Full fat milk • Whole milk **Lactose intolerant adult** • Almond • Soya/soy • Oatley/oat • Lactofree milk/Lactose free • Hemp milk • Rice milk • Coconut milk **Vegan** • Almond • Soya/soy • Oatley/oat • Hemp milk • Rice milk • Coconut milk	3	3 x 1 mark Do **not** accept the same response for two different consumers.
	(b)		• Milk is pasteurised • Milk is homogenised • Milk is incubated and the **harmless** bacteria are added • Bacteria converts lactose to lactic acid • Yogurt is left to set/clot /thicken/ until the correct acidity levels are reached • Fruit and/ or flavourings can be added OR **Homemade method** • Heat milk but do not allow to boil • Cool milk • Stir in **live** yoghurt • Place in sterilised sealed jar and leave in a warm place for 4-6 hours to ferment/set\clot\thicken • Fruit and /or flavourings can be added	4	4 x 1 mark **Must** follow a logical sequence. Do **not** allow to mix and match of methods.

<table>
<tr><th colspan="3">Question</th><th>Answer</th><th>Mark</th><th>Guidance</th></tr>
<tr><td>8</td><td>(c)</td><td></td><td>• Could cause food poisoning / illness
• High protein content
• May be unsafe to eat
• Moist food
• Yogurt is a high risk food
• Legal requirement/mandatory/by law</td><td>1</td><td>1 mark

Do not accept goes off.</td></tr>
<tr><th colspan="3">Question</th><th>Answer</th><th>Mark</th><th>Guidance</th></tr>
<tr><td>9</td><td>(a)</td><td></td><td>
<table>
<tr><th>Type 1 diabetes</th><th>Type 2 diabetes</th></tr>
<tr><td>Often diagnosed in childhood</td><td>Usually diagnosed in over 30 year olds</td></tr>
<tr><td>Not associated with excess body weight/cannot be prevented</td><td>Often associated with excess body weight/can be prevented</td></tr>
<tr><td>cannot be prevented</td><td>can be prevented by a healthy lifestyle /often associated with high blood pressure and/or cholesterol levels at diagnosis</td></tr>
<tr><td>Treated with insulin injections or insulin pump</td><td>Is treated by losing weight/increase in exercise/medication</td></tr>
<tr><td>Cannot be controlled without taking insulin</td><td>Sometimes possible to come off diabetes medication/non insulin dependant</td></tr>
<tr><td>Body produces little or no insulin</td><td>Body does not produce enough insulin/body does not use insulin properly/insulin resistance</td></tr>
</table>
</td><td>2</td><td>1 x 2 marks</td></tr>
</table>

Question			Answer	Mark	Guidance	Level of response
9	(b)*		*Dietary advice that you would give to a person who has type 2 diabetes.* **Eat a diet low in sugar** - diabetes is made worse with constant increases in sugar intake. Sugar causes fluctuations in blood sugar – linked to hyper- or hypoglycaemia. **Follow the guidance of the Eatwell Guide/eat a wide range of foods /low salt/low fat** - large proportion of starchy foods/fruits and vegetables. **Read food labels carefully** - many ready meals and commercially produced products contain hidden sugars these foods should be avoided. **Reduce the amount of sugar in recipes** - e.g. use less sugar in recipes / replace sugar with naturally sweet foods (i.e.) fruit. **Regular small meals/don't skip meals** - avoids peaks and troughs in blood sugar – more stable blood sugar, better control of the condition. **Where possible use wholemeal products/complex carbohydrates** slow break down of glucose means that the body has time to deal with the increase blood sugar/glucose helping to manage the condition. **Avoid high sugar/high fat snacks** however suitable snack/drink may be required to keep to keep blood sugar levels stable e. g fruit	6	**No ticks** **Level of response annotation** in left hand column at end of answer. **Not exercise as dietary advice asked for.**	**Band 3 (5–6 marks)** There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated. Shows thorough understanding of the advice which should be given to a person with type 2 diabetes. Use of specialist language is accurate. **Band 2 (3–4 marks)** There is a line of reasoning presented with some structure which is in the most part relevant. A good well-balanced answer showing good understanding of the advice which should be given to a person with type 2 diabetes. **Band 1 (1–2 marks)** The information is basic and communicated in an unstructured way. The information is supported by limited evidence and the relationship to the evidence may not be clear. Limited understanding of the advice which should be given to a person with type 2 diabetes **0 Marks:** no response worthy of credit

Question			Answer	Mark	Guidance
9	(c)		**Bacteria /plaque** in the mouth feed on sugar producing **acid** that cause small holes / dental caries in the tooth structure/teeth decay.	**2**	1 x 2 marks Words in bold must be used for 2 marks to be awarded.

Question			Answer	Mark	Guidance
10	**a**	**i**	• 63ºC • Above 63ºC	1	1 mark Only accept these answers.
	a	**ii**	• 75 ºC	1	1 mark
	b		• Food • Moisture/moist/damp • Oxygen • Time • Warmth/warm	3	3 x 1 mark Do **not** accept heat.
	c		• Browning / enzymic browning • Change in colour/discoloration • Change in size / shrinks • Change in texture / soft / dry / slimy / consistency • Mould • **Unpleasant** smell • **Unpleasant** taste	3	3 x1 mark

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