
FOOD AND NUTRITION**0648/12**

Paper 1 Theory

October/November 2019

MARK SCHEME

Maximum Mark: 100

Published

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge International will not enter into discussions about these mark schemes.

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This document consists of **16** printed pages.

Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptors for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptors for the question
- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
- marks are not deducted for errors
- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

Rules must be applied consistently e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

GENERIC MARKING PRINCIPLE 5:

Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).

GENERIC MARKING PRINCIPLE 6:

Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

Question	Answer	Marks
1(a)	<i>metabolism</i> chemical process by which the body converts food and water into energy / to maintain and sustain life;	1
1(b)	<i>basal metabolism</i> the minimal energy used by the body to survive (whilst warm and resting);	1
1(c)	<i>mineral used to make thyroxine</i> iodide;	1

Question	Answer	Marks
2(a)	<i>explain the term HBV</i> contains all essential / indispensable <u>amino acids</u> ;	1
2(b)	<i>explain the term LBV</i> lacks at least one essential / indispensable <u>amino acid</u> ;	1
2(c)	<i>foods which are good sources of HBV protein</i> chia; dairy foods or named example, e.g. cheese, milk, yoghurt; eggs; fish / seafood or named example; meat or named example; offal or named example; quinoa; Quorn; soya / products or named example, e.g. tofu;	4

Question	Answer	Marks
3(a)(i)	<i>sucrose = 1 unit of glucose + 1 unit of fructose;</i>	1
3(a)(ii)	<i>lactose = 1 unit of glucose + 1 unit of galactose;</i>	1
3(b)	<i>enzymes involved in the digestion of sugars</i> lactase; maltase;	2
3(c)	<i>health problems caused by too high an intake of sugar</i> type 2 diabetes; dental caries / tooth decay; weight gain / overweight / obesity;	2
3(d)	<i>ways of reducing sugar in the diet</i> do not add to drinks / beverages; use (artificial) sweeteners / stevia; drink low sugar soft drinks / drink water instead; reduce sugar in recipes / use herbs or spices instead of sugar; eat fewer sweets / chocolates / cakes / biscuits or lower sugar alternative or eat fruit instead or eat savoury foods instead; choose canned fruit in fruit juice instead of syrup; do not eat sugar-coated breakfast cereal; eat 'sugar free' or 'less sugar' products; use fewer convenience / processed foods; read nutritional information on packaging for sugar content before purchase;	5

Question	Answer	Marks
3(e)	<p><i>effects of dry heat on sugar</i></p> <p>texture change / sugar melts / becomes sticky / becomes liquid; colour change / non-enzymic browning reaction occurs / gives a golden (brown) or yellow colour; sugar caramelises; golden brown crust formed; smells of caramel; continued / prolonged heating causes burning / charring / black;</p>	3

Question	Answer	Marks
4	<p><i>ways of increasing NSP</i></p> <p>choose high fibre breakfast cereals; choose wholegrain bread; increase intake of seeds; increase intake of beans and lentils; increase intake of vegetables; eat potatoes with the skins; increase intake of fruit especially those eaten with skins / dried fruit; switch from white rice / pasta to brown rice / wholemeal pasta; increase intake of nuts; use bran; add oats;</p>	5

Question	Answer		Marks
5	<i>vitamin A / retinol</i>	xerophthalmia / night blindness;	4
	<i>vitamin B₁ / thiamin</i>	beriberi;	
	<i>vitamin B₃ / nicotinic acid</i>	pellagra;	
	<i>vitamin D / cholecalciferol</i>	rickets / osteoporosis / osteomalacia;	

Question	Answer	Marks
6(a)	<p><i>points for choosing green leafy vegetables</i></p> <p>choose veg in season; choose veg grown locally; avoid veg infected with insects / holes in leaves; avoid veg with mould / diseased / black spots; choose veg with crisp / firm leaves / avoid veg with wilted leaves; select veg which has a good vibrant colour / no yellow or brown edges; avoid veg with slimy appearance; avoid bruised / damaged / rotten veg or veg with bad smell; check use-by / best-before date; budget / cost / cheaper alternatives; consider organic / no pesticides;</p>	5
6(b)	<p><i>how to store green vegetables</i></p> <p>avoid exposure to air / oxygen / airtight container; store in the dark / avoid exposure to light / not in sunlight; store in a fridge / salad drawer / cool place / crisper; do not wash / wash and dry; do not keep too long; keep in a dry place;</p>	3

Question	Answer	Marks
7(a)	<i>method used to make the Swiss roll</i> whisking;	1
7(b)	<i>method of making Swiss roll</i> whisk eggs and sugar; whisk until thick and creamy / leaves a trail / fluffy; sieve flour; add flour in thirds / portions / gradually; fold in flour; use a metal spoon / palette knife / spatula; use a cutting action or figure of eight to fold in; continue folding until no dry flour visible;	5
7(c)	<i>different ingredients which could be used to vary the flavour of the Swiss roll mixture</i> almond essence; cocoa powder / chocolate; coffee essence; lemon essence; orange essence; peppermint essence; vanilla essence; caramel; spice or named example, e.g. cinnamon; matcha;	2

Question	Answer	Marks
7(d)	<p><i>reasons why the finished Swiss roll might have a close texture</i></p> <p>insufficient whisking; air knocked out during folding in of flour / addition of flour; did not use a cutting action to add flour – whisked / beat in flour; used wooden spoon / electric mixer for adding flour; did not use metal spoon / palette knife to incorporate flour; continued folding after all flour was incorporated; not baked immediately; oven temperature too low; insufficient baking / undercooked; eggs not at room temperature; knocking air out when placing in tin;</p>	3
7(e)	<p><i>factors to consider when choosing a new electric hand mixer</i></p> <p>colour to fit in with kitchen décor; consider the dimensions / size of the hand mixer so it will fit neatly into a cupboard or drawer; make sure the cord is long enough to safely reach from the socket to work station; look for functionality / versatility / selection of attachments such as dough hook, balloon whisk, blender attachment to ensure blender will be fully used; a digital touch pad control is easier to keep clean than knobs and buttons; LED displays are easier to read; locking heads keep the beater / attachments in place until the release button is pressed; look for a release button to eject the beaters or whisk without having to touch them; a swivel cord makes it easy to use the mixer for either right or left hand and increases manoeuvrability; a bowl rest feature / an indentation on the underside of the mixer allows the mixer to be safely set down on the edge of a bowl without dripping on the worktop; cord storage or a retractable cord is useful to prevent damage to flex; choose a mixer which is affordable / suits budget; choose model that has a good / brand / reputation / ask family or friends for advice to ensure value for money; a storage case / stand useful to keep all attachments / accessories in one place;</p>	6

Question	Answer	Marks
7(e)	<p>choose a mixer that is well balanced, ergonomically designed and the handle has a comfortable grip / soft-grip to avoid slipping;</p> <p>choose a model with a smooth, seamless underside / no centre posts so it is easy to clean;</p> <p>choose attachments made from plastic / stainless steel so they are strong / durable / dishwasher safe;</p> <p>multiple speeds for different mixtures / low start speed avoids splattering of ingredients / turbo burst gives a powerful burst of strength that is ideal for working heavier mixtures and dough;</p> <p>energy consumption / how powerful it is;</p> <p>weight to suit personal preference, if mixing for long periods of time a heavier model might put a strain on arm muscles / extra attachments like dough hook can make a mixer heavier to handle;</p> <p>handle should have a natural, comfortable angle which will prevent any wrist and shoulder discomfort / slanted handles give a good comfy grip and there is no need for application of extra force / a parallel handle means the elbow has to be lifted up which may cause discomfort with prolonged use;</p> <p>warranty / guarantee;</p> <p>noise level during usage;</p> <p>beaters easy to insert / remove / clean;</p> <p>clearly written instructions for usage;</p>	
7(f)	<p><i>safety points to prevent accidents when using an electric hand mixer</i></p> <p>do not use near water / touch with wet hands;</p> <p>keep to back of work top / out of the reach of children;</p> <p>no trailing flexes / do not stretch flex during use / use coiled flex;</p> <p>service / check equipment regularly / check before use;</p> <p>plug should not be broken, e.g. no screws missing / no bare wires;</p> <p>switch off at appliance and wall before removing plug;</p> <p>do not overload socket by using adapters;</p> <p>follow manufacturer's instructions / read instructions before use;</p> <p>wipe motor with damp cloth / do not immerse in water;</p> <p>keep hands well away from beaters and blades when using / washing up;</p> <p>keep hair tied back / no loose clothing;</p> <p>insert beaters fully before use;</p> <p>hold bowl in place when mixing;</p>	5

Question	Answer	Marks
7(g)	<p><i>first aid procedure for a person who has just received an electric shock</i></p> <p>switch off / isolate appliance; do not touch the person until the appliance has been switched off; push appliance away from the person with dry wood / broom handle; check person is breathing / airway / pulse; resuscitate if needed only if isolated; contact emergency services if required / hospital;</p>	3

Question	Answer	Marks
8(a)	<p><i>conditions needed for the growth of microorganisms</i></p> <p>warmth; moisture / damp / water / wet; food; time; oxygen / lack of oxygen / air; (correct) pH;</p>	3
8(b)(i)	<p><i>a reason for sterilising all equipment</i></p> <p>to destroy any harmful bacteria / microorganisms / pathogens; prevent cross-contamination;</p>	1
8(b)(ii)	<p><i>a reason for adding <i>Lactobacillus bulgaricus</i> and <i>Streptococcus thermophilus</i></i></p> <p>they are bacteria which feed on / eat the lactose / sugar in milk; producing lactic acid; to add flavour; to allow yoghurt to thicken;</p>	1

Question	Answer	Marks
8(b)(iii)	<p><i>a reason for adding a stabiliser to the yoghurt</i></p> <p>to improve the texture by increasing firmness; preventing separation (of the whey); helping to keep any added fruit uniformly mixed in the yogurt;</p>	1
8(c)(i)	<p><i>reasons for list of ingredients</i></p> <p>to identify all the ingredients in the product / know what you are eating / avoid certain ingredients; to identify high risk food for those who may be allergic / intolerant to certain foods; may help determine the nutritional content / value of the product; may help with selection of a low fat / sugar / salt product; comply with legislation;</p>	2
8(c)(ii)	<p><i>reasons for storage instructions</i></p> <p>allows the product to be at its best before eating; to minimise bacterial growth or risk of food poisoning; prevents spoilage / waste by keeping the product in the best condition for a longer time / until the use-by / best-before date; comply with legislation;</p>	2
8(c)(iii)	<p><i>reasons for weight of product</i></p> <p>to be able to compare prices / look for value for money; to be able to calculate the number of portions in a product; to be able to calculate how much to buy; comply with legislation;</p>	2

Question	Answer	Marks
9	<p><i>reasons why convenience foods are popular</i></p> <p>easy to store / long shelf life so can shop less often; may take up less storage space than natural components therefore useful for those with limited space; can be stored and used in emergencies such as unexpected visitors / typhoon; saves time shopping for ingredients / less washing up needs to be done / quick to prepare / cook; saves fuel energy due to fewer cooking processes / quick reheating; can buy in one portion sizes / suit people living on their own; portion controlled so no waste / eat less; may prove cheaper / no need to buy each separate ingredient; consistent quality / result / know what you are getting; may taste better than when made at home; require little skill / cook may have limited skill / saves effort / easy to cook; large variety available / multicultural options / unseasonal products / budget range so provides greater choice / good for likes and dislikes of family members; some specialise in different dietary needs and can be helpful for consumers dealing with different needs; may have extra nutrients added / fortified; label includes cooking / storage instructions useful for those who have limited knowledge; less equipment needed for preparation / cooking; good for families who eat at different times / suits lifestyles; nutritional information on packaging can check for allergy ingredient / intolerance / specific nutrients;</p>	8

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Question	Answer	Marks
10(a)	<p><i>Compare and contrast grilling and stewing as methods of cooking</i></p> <p>grilling is a dry method of cooking whereas stewing is a moist method of cooking; grilling is cooking by means of radiated heat whereas stewing uses conduction and convection; grilling is from a heated grill / oven with grill function / from a smokeless fire / using charcoal / BBQ whereas stewed foods may be cooked in a covered pan on the stove / in the oven / in slow cooker / pressure cooker; grilling is a quick / fast method whereas stewing is long slow process of cooking; when grilling it is easy to overcook and dry foods out / make food tough / burn food whereas stewed food becomes soft and digestible / tough cuts of meat are made easy to digest by breaking down of connective tissue into gelatine; grilling develops texture / makes food crispier whereas condensation which continually forms on the inside of the lid acts as a self-basting process keeping stewed food moist; grilled food cannot be reheated or kept hot without drying out and the food hardening whereas stews can be easily kept hot and do not deteriorate if carefully reheated; grilled food needs constant supervision / skill / has to be turned frequently whereas with stewing only occasional attention is needed during cooking; grilling is only suitable for more tender and therefore more expensive cuts of meat whereas stewing is an economical method as it uses inexpensive tough cuts of meat; when grilling nutrients are lost whereas nutrients are conserved in stewed food and are served / with the gravy / syrup;</p>	15

Question	Answer	Marks
10(b)	<p><i>Discuss the role that different religions play in influencing food choices</i></p> <p>choice may be restricted; some foods may be avoided; some religions require that certain foods are excluded from the diet; may choose foods because they are deemed suitable by their religion / customs / ethics; may choose certain foods on particular religious occasions / festivals;</p> <p><i>Jewish</i> all animals eaten must be kosher, following the rules in the Torah / Holy Book; may eat cud-chewing / cloven-footed animals which are slaughtered in a ritual ceremony; may eat fish with scales and fins; may not eat – shellfish / crustaceans / rabbit / pork / bacon / ham / eels / eggs with blood spots / gelatine; may not eat meat and milk together so separate storage and preparation areas and cooking equipment; Jews should not prepare food on the Sabbath, which begins at sundown on Friday and ends at sundown on Saturday; The Feast of the Passover Easter has set traditions about foods that are eaten and at these times this will influence food choice (e.g. Matzo the special unleavened bread is broken by the father and a piece is passed to everyone / wine is drunk four times / each person reaches out and takes a small selection of green vegetables, dips it in salt water and eats it); Day of Atonement – eat before sunset followed by 24 hour fast, followed by celebration meal;</p> <p><i>Christian</i> celebrate through festivals – with special traditional foods – Lent / Christmas / Mothering Sunday / Easter / Shrove Tuesday / Good Friday; no food forbidden though some denominations eat only fish on Fridays;</p> <p><i>Muslim / Islamic</i> food must be halal (lawful) – animal has to be slaughtered in a certain way – animals must be killed by a Muslim with one clean cut to the throat while a special dedication is recited, all blood must be drained from the animal; halal meat can be more expensive, which would be a consideration when choosing foods if you were a Muslim / Islamic; forbidden foods (haram) – pork, fish without scales, shellfish, meat incorrectly slaughtered; alcohol is forbidden; practise regular fasting at Ramadan – fast for one month during daylight hours, at the end of the month a big celebration takes place – eid-ul-fitr for breaking the fast;</p>	15

Question	Answer	Marks
10(b)	<p><i>Hindu</i> the cow is sacred to them so they will not eat beef / beef products; some drink milk and eat milk products; strict Hindus are vegetarian / vegan; some may also avoid domestic fowl, salted pork, milk, ghee, onions, garlic, eggs and coconut; Diwali, festival of light, is a five day Hindu religious festival, which is celebrated in October / November; Holi festival celebrating the beginning of spring;</p> <p><i>Buddhist</i> many are vegetarians, although meat and fish not forbidden; monks and nuns cannot grow, store or cook food and must rely upon food given to them;</p> <p><i>Sikh</i> many Sikhs are vegetarian; Sikhs do not eat halal or kosher meat as they are not meant to take part in religious rituals apart from the Sikh Rehat Maryada (Code of Conduct); Sikhs should not consume food / drink which may harm their body, e.g. alcohol;</p> <p><i>Rastafarian</i> no animal foods, except milk; food must be local or alive / natural / clean; no canned and processed foods / salt / coffee / alcohol;</p> <p><i>Seventh-Day Adventist Church</i> Adventists are lacto-ovo vegetarians; some avoid food and drinks which contain caffeine; alcohol is forbidden;</p> <p><i>Jains</i> predominantly vegetarian as they renounce killing directly or indirectly; monks and nuns and strict Jains (anantkay) do not eat roots or tubers or garlic; lacto vegetarian do not eat eggs but accept dairy products; fasting; do not consume alcohol; do not eat fruit or vegetables with seeds;</p>	