CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International General Certificate of Secondary Educatio

MARK SCHEME for the October/November 2

0648 FOOD AND NUTRITION

0648/12 Paper 1 (Theory), maximum raw mark 100

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 will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the October/November 2014 series for most Cambridge IGCSE®, Cambridge International A and AS Level components and some Cambridge O Level components.

® IGCSE is the registered trademark of Cambridge International Examinations.

Mark schemes will use these abbreviations

- ; separates points worth 1 mark
- – separates points worth less than 1 mark
- / alternatives
- **R** reject
- **A** accept (for answers correctly cued by the question)
- **I** ignore as irrelevant
- **ecf** error carried forward
- **AW** alternative wording (where responses vary more tha
- **AVP** alternative valid point
- **ORA** or reverse argument
- underline actual word given must be used by candidate
- ( ) the word / phrase in brackets is not required but sets the context
- max indicates the maximum number of marks
- *italics* used to denote words or phrases from the question

Section A

		Answer		
1		incorrect or unbalanced intake of nutrients / not all nutrients in the right amount;		
2	(a)	*B1* thiamine; *B2* riboflavin; *B3* niacin / nicotinic acid;		
	(b)	bananas – grapefruit – oranges – dragonfruit – pineapple – papaya – soursop; cereals – wholegrain cereals – flour – bread; eggs – milk – dairy products / named example; fish roe; green leafy vegetable / named example; meat – offal; nuts – potatoes – okra – pulses; yeast – yeast extract;	[2]	2 foods needed for 1 mark.
	(c)	B_{12} / cobalamin;	[1]	
	(d)	ascorbic acid; iron; scurvy;	[3]	
	(e)	blackcurrants – citrus fruits / named example – dragonfruit – green / red peppers – green leafy vegetable / named example – kiwi fruit – mango – papaya – pineapple – soursop – starfruit – strawberries – tomatoes –	[2]	2 foods needed for 1 mark.
	(f)	soluble in water / leached / dissolved into water; lost / destroyed by heat;	[2]	

3		*functions* forms bones / teeth / nails; helps blood clotting; muscle function; nerve function; *sources* bones of canned fish e.g. salmon; green leafy vegetable; hard water; milk / cheese / yoghurt; seeds / nuts / lentils; wholegrain cereals / bread; *deficiency* osteomalacia; osteoporosis; poor contraction of muscles; rickets in children; stunted growth in children; tetany; weak / breaking / soft bones / teeth / nails;		
4	**(a)**	*location* in mouth; <u>salivary</u> amylase / produced by <u>salivary</u> glands; *action* converts starch; to maltose / disaccharide / sugar; OR *location* in duodenum / small intestine; pancreas / pancreatic juice; *action* converts starch; to maltose / disaccharide / sugar;	[4]	2 × 1 mark for location 2 × 1 mark for action
	(b)	*location* in small intestine / duodenum; pancreas / pancreatic juice; *action* breaks down fats; into glycerol and fatty acids;	[3]	1 mark for location 2 × 1 mark for action
	(c)	*location* in stomach; *action* breaks down protein; into shorter amino acids chains; called peptides;	[3]	1 mark for location 2 × 1 marks for action

5	calcium for maintenance of skeleton / bones / teeth; climate / time of year e.g. hot meals in cold weather / soup in winter / salads in summer; easy to eat with reason / example; fresh fruit and vegetables for vitamins / minerals / NSP; iron to carry oxygen / oxidise glucose / produce energy; low in saturated fat / cholesterol which causes CHD; low in sugar which causes tooth decay / diabetes / obesity; NSP for efficient digestive system / prevention of constipation; packaging to prevent food becoming soggy / crushed; protein / specifically HBV protein for building muscle mass / replacing worn out cells; sufficient calories for activity so energy-dense food / food containing starch / fat; sodium chloride to replace that lost during physical exertion; variety of colour with example; variety of flavour with example; variety of texture with example; vitamin B to release energy from carbohydrates / fats / protein; vitamin C to replace that lost during physical exertion / for iron absorption; water / fluid to replace that lost during physical exertion / avoid dehydration / 70% of body is water; well-balanced with all food groups represented;	• drink • easy to pack / not crushable • variety • suitable for eating outdoors

Section B

6 (a)	bulb – e.g. onion / shallot / garlic / leek; flower – e.g. cauliflower / broccoli; fruit – e.g. tomato / cucumber / peppers / corn on the cob / courgette; fungi – e.g. mushrooms; leaf – e.g. cabbage / lettuce / spinach / pak choi / watercress / sawi; pods – e.g. mange tout / French beans / runner beans / okra; root – e.g. carrot / beetroot / parsnip / turnip / radish; seeds – e.g. peas / broad beans / bean sprouts; stem – e.g. celery / asparagus; tuber – e.g. potato / sweet potato / Jerusalem artichoke / yam;		
(b)	calcium plus function; carbohydrate plus function; HBV / LBV protein plus function; iron plus function; low fat plus health benefit; NSP plus function; provide colour / flavour / texture / can be eaten raw or cooked; variety of dishes – soup / drinks / salads / accompaniments; vitamin A plus function; vitamin B plus function; vitamin C plus function; water plus function;	[5]	Answer must include point and reason / function for each mark.
(c)	use peas in best condition – so less chance of decay / wastage; check for foreign bodies – wash to remove soil / bacteria / pests; blanch / plunge into boiling water – to destroy enzymes and bacteria; immerse into ice-cold water – to cool down quickly / out of the danger zone; pat dry – to prevent clumping; open freeze – so remain individual when required; place into container / freezer bag and seal – remove air which may contain bacteria; label the peas – to identify;	[4]	Answer must include step and reason for each mark.

	(d)	* store for one week; *** store for three months;		
	(e)	economical / bulk buy; frozen more convenient; good for unforeseen circumstances; less wastage in preparation and through decay; long shelf life; nutritional / cooking / storage information on packaging; quality assured if well-known brand is used; retain nutritional value; saves time / effort in preparation / cooking; use produce out of season; vegetables retain colour;		
7	**(a) (i)**	*advantages* easy to clean – food does not burn on dish / sides of oven / oven; easy to install – portable; economical – saves fuel; kitchen does not get hot – no pre-heating of oven needed; healthy – little loss of nutrients / quicker method; saves washing up – cook and serve in same dish; short cooking times – useful for busy people; simple to use – no skill needed; small – so suitable for small kitchens; versatile – can be used for thawing, cooking and reheating; *disadvantages* food needs stirring during cooking – 'hot spots' may develop; food does not brown – difficult to judge when food is cooked / easy to overcook; dish does not become crisp – affects sensory properties of the food; limits range of cooking – e.g. eggs in shell cannot be cooked; flavours not developed e.g. as when stewing – cooking time is quick; must be careful not to use metallic dishes – reflections from metal will damage the magnetron / microwave oven; only suitable for thin / small pieces / small amounts of food – microwaves penetrate outer layer of food only;	[5]	2–3 advantages 2–3 disadvantages Answer must include point and reason for each mark. **A** reference to electricity provision / supply, with qualification.

	(ii)	*advantages* easily cleaned – can go into dishwasher; consistent results / size / shape / thickness – grating cheese / slicing carrots / improves quality of dish; good for processing large quantities – appliance does the work; less effort / labour saving – appliance does the work; process can be timed exactly to ensure results are the same – rubbing in / creaming / improved quality of dish; quicker – saves time compared with e.g. knife; safer – than using a knife for chopping; useful for disabled people / those with arthritis – less labour required; useful if skill levels low – appliance does the work; versatile – with attachments can be used to make purées / batters / breadcrumbs / grind food such as nuts / whisk cream / knead / mince / juice; *disadvantages* blades sharp – can be dangerous; bulky / heavy – can be difficult to manoeuvre it in the kitchen; can be difficult to wash – awkward shape and size / sharp parts; difficult to assemble; need space to store or keep on work surface – less suitable for smaller kitchen; careful timing / attention needed – otherwise may overdo method;		
	(b)	do not use near water / operate with dry hands; switch off at socket before removing plug / blades / beaters; no metal / foil in microwave; service regularly; do not overload; no trailing / twisted / fraying flexes / wires; plugs should not be broken / missing screws; read instructions / make sure of how to use equipment; wash / handle processor blade with care; do not wash motor block;	[3]	
8	**(a)**	rubbing in;	[1]	
	(b) (i)	sieving / rubbing in traps air as flour / fat falls;	[1]	
	(ii)	self-raising flour contains baking powder;	[1]	

(c)	fat melts; water from milk turns to steam / evaporates; raising agent in flour gives off carbon dioxide gas; expanding gases push up the mixture; starch absorbs liquid; starch gelatinises; gluten / protein coagulates / denatures; sugar melts / caramelises / turns brown and 'nutty'; surface dries out to form crust; starch dextrinises / turns brown and sweet;		
(d) (i)	omit the salt; replace butter with unsalted butter / vegetable fat / margarine;	[1]	
(ii)	replace butter with vegetable fat / margarine; use semi-skimmed / skimmed milk;	[1]	
(iii)	lower sugar; replace with sweetener; use fruit;	[1]	
(iv)	addition of bran; use of wholemeal flour; addition of grains / oats / fruit;	[1]	
(e)	addition of any salty / meaty product / bacon / ham / salami; cheese; courgette; herbs / named example; olives; peppers; spring onion; sun-dried tomatoes; sweetcorn; tuna; reduction / omission of the sugar; AVP	[2]	

Section C

9 (a)	advertising / persuasive methods to get people to buy; balanced diet; changes in technology / cook-chill meals / one-pot meals / steam cuisine; dietary recommendations fat / sugar / salt / fibre; ethics / morals e.g. vegetarian / organic / food miles / fair trade / packaging / GMfoods / irradiation / fertilisers / additives; facilities for food storage / preparation / kitchen equipment available; family patterns / lifestyle; individual requirements / pregnancy / toddler / adolescent / adult / elderly / manual worker / sedentary worker; influence of foreign travel / immigration / living in a multi-cultural society / ethnic foods in shops / restaurants; level of skill of person preparing and cooking food; likes / dislikes / food preference; money available / purchasing ability; more demand for / availability of convenience foods; occasion of the meal / festivals / traditions / customs; peer pressure; religion / kosher / halal; state of health / health-related issues / special needs / illness / convalescence / allergies; time / place the meal is to be eaten breakfast / snack / lunch / picnic; time available for food preparation / cooking / eating; time of year / season / climate affects type / cost of food selected / available;	A C D e F d • 2 factors required for 1 mark • maximum 5 marks Must show good understanding for full marks e.g. • A good range of well-discussed points encompassing a variety of factors affecting choice. • Good examples used to illustrate. • Correct terminology used, where appropriate. • Comments precise and relevant. • Answers well-organised and clearly presented. • A sound understanding of the topic demonstrated. • Will have considered the question in a broad way.

(b)	*causes of food spoilage* bacterial contamination from soil / air / food handler; chemical contamination e.g. bleach; conditions which cause growth of microorganisms / warmth / food / moisture / time / pH; contaminated equipment; cooling food too slowly prior to refrigeration; cross contamination (from raw to cooked food); enzymes cause browning / destroy vitamin content; food prepared too far in advance / stored at room temperature / in the danger zone; natural decay within the food by microorganisms / yeasts / bacteria / moulds / fermentation; not reheating leftover food to high enough temperature; not thawing frozen food, especially poultry, correctly; pests; pets; shelf life / use-by date / best before date not observed; undercooking high-risk food; using cooked food contaminated with bacteria; *kitchen hygiene* clean work surfaces / equipment / food storage areas regularly; clean chopping boards / knives / other equipment / hands after use with raw food; cool left over food quickly; correct temperature of 0–5 °C for fridge / –18 °C for freezer; dispose of rubbish in covered bins; do not combine older milk with newer milk; keep all food covered;	D e C F d • • Must show good understanding for full marks e.g. • A good range of well-discussed points covering both areas of the question. • Good examples used to illustrate. • Correct terminology used, where appropriate. • Answers well-organised and clearly presented. • A sound understanding of the topic demonstrated. • Will have considered the question in a broad way.

	keep pests away from food preparation areas; keep pets away from food preparation areas; keep raw and cooked foods apart; observe use-by / best before dates / stock rotation; store raw meat and food that is not going to be cooked or reheated in the refrigerator; use colour-coded chopping boards appropriately / change chopping boards; walls / floors / ceilings must be in good condition / easy to clean; work surfaces smooth / no cracks / non-absorbent material / easy to clean;	