CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International General Certificate of Secondary Educatio

MARK SCHEME for the October/November 2

0648 FOOD AND NUTRITION

0648/13 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.

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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	M	
1		correct / right amount / intake of nutrients for a person's needs;		
2	(a)	(kilo)calorie; (kilo)joule;		
	(b)	(mechanical energy for) movement / work; (chemical energy for) metabolic reactions / digestion; (heat energy to) maintain body temperature / to keep warm; (electrical energy for) transmission of nervous impulses; basal metabolism / BMR / heartbeat / blood circulation / breathing / involuntary processes; growth plus example;	[4]	
	(c)	energy intake = energy output; number of kcal / kJ taken into the body = number of kcal / kJ used;	[1]	
	(d)	excess converted to fat / stored under skin / adipose tissue / or around internal organs / increased risk obesity; CHD; increased risk diabetes; breathlessness; high blood pressure; stroke; low self-esteem; problems during surgery; loss of weight; risk of anorexia; reduced levels of energy / lethargy / tiredness; risk of deficiencies such as anaemia; periods stop (amenorrhea); low self-esteem;	[3]	Answer must include at least **one** consequence of a positive imbalance and at least **one** consequence of a negative imbalance for full marks. **R** malnutrition
	(e)	amylase; salivary; maltose; glucose; villi; liver	[3]	2 points needed for 1 mark.
3	(a)	tooth decay / dental caries; bacteria / plaque change sugar into acids and dissolve enamel; risk of diabetes; too much glucose in blood for insulin produced; permanent damage to eyes leading to blindness; damage to blood vessels in hands and feet leading to risk of infection and possible amputation; damage to internal organs such as kidneys;	[4]	Answer must refer to **two** health issues. 1 mark for health issue 1 mark for explanation

	(b)	avoid adding sugar to drinks; use artificial sweetener; drink low-calorie/diet drinks; avoid sweet fizzy drinks; eat fewer sweets / chocolate / biscuits / cakes; reduce sugar in recipes; use fruit canned in fruit juice instead of in syrup; do not buy sugar-coated breakfast cereal; buy 'sugar free' products; use less convenience food; study nutritional information on packaging;		
4	**(a)**	adds bulk; absorbs water (in colon); softens faeces; makes it easy to remove faeces; helps lower blood-glucose levels; helps remove toxic waste; stimulates peristalsis / helps to clear waste; can reduce blood cholesterol; gives feeling of fullness / limits intake of carbohydrates / helps control weight;	[4]	**A** reduces risk of symptoms of deficiency but do not credit same answer twice in 4(a) and 4(b).
	(b)	constipation; hernias; haemorrhoids; cancer of colon; diverticular disease; varicose veins;	[3]	
	(c)	*soup* add barley; add vegetables; do not peel vegetables, if appropriate; use pulses; *bread* add oats / grains / seeds; use wholemeal flour; *fruit based dessert* use wholemeal flour; add oats to toppings, such as crumble; use more fruit than the recipe suggests; keep the skins on fruit, if appropriate; *meat dish* add more vegetables; serve with named high-fibre accompaniment e.g. wholewheat spaghetti;	[4]	Answers must be different.

5	protein – growth of fetus; essential fatty acids / linolenic / linoleic – brain growth and cell division; vitamin A – fetal eyesight / production of visual purple / rhodopsin; vitamin B – release of energy; vitamin B_9 / folate / folic acid – prevent neural tube defects / spina bifida; vitamin C – absorb iron/antioxidant; vitamin D – absorb calcium / prevent tetany / low birth weight / osteomalacia; calcium and / or phosphorus – building bones / teeth / skeleton; iron – for baby's first sixth months / prevent anaemia / formation of haemoglobin;	

Section B

6	**(a)**	yeast; moulds;		
	(b)	transfer of microorganisms from one food (usually raw) to another food; direct contact between two foods e.g. raw chicken next to cooked ham; drips from raw food e.g. raw meat on fridge shelf onto food underneath; indirect contact e.g. by hand / dishcloth / equipment;		
	(c)	moist; high protein; ideal for growth of bacteria; needs care with storage / temperature as can easily become contaminated; could already contain bacteria / salmonella;	[2]	
	(d)	list of ingredients – identify high risk food; shelf life / use-by date – shows safe time product can be kept; instructions for use – gives safe cooking time / temperature; defrosting guidelines – tell when ready / safe to cook; storage instructions – give information on conditions to keep food / temperature / length of time / freezer guidelines;	[4]	Answer must include type of information and reason for each mark.
	(e)	*storage* cool rapidly to prevent growth of bacteria; keep in covered container in the fridge; keep out of the danger zone / 5–63 °C; use within 24–48 hours; keep away from raw food to stop cross-contamination; *reheating* mince / dice / cut up into small pieces to allow heat penetration; reheat to at least 72 °C; do not recook as protein will become indigestible; use some form of moisture to replace that lost by initial cooking method; precook any additional ingredients before adding to dish to enable quick cooking; include flavouring / herbs / spice) to replace that lost; do not reheat more than once to lessen risk of food poisoning; serve immediately to discourage bacterial growth;	[4]	Answer must include advice and reason for each mark. Answer must refer to storage and reheating for full marks.

	(f)	additional features e.g. ice maker / water cooler / bottle rack / humidity-controlled compartment; brand; capacity / size of family; colour; cost; digital temperature display / high temperature warning; energy efficiency; freezer compartment; frost-free / automatic defrost; how easy is it to clean; integrated; rollers to move easily for cleaning purposes; shelf design / adjustable shelves / solid rather than wire to prevent dripping; space available in kitchen; star-rating;		
7	**(a)**	cheap; easy to grow; easy to process; easy to store; easy to transport; filling; last a long time; many varieties; NSP in wholegrain; source of (LBV) protein; source of vitamin B; staple food; starch / carbohydrate / source of energy; versatile / used for sweet and savoury dishes;	[4]	
	(b)	barley; corn / maize / mealie meal; millet; oats; rye; sorghum; wheat;	[4]	**R** rice
	(c)	starch absorbs the heated water; rice grains increase in size / become swollen; cell walls soften; grains rupture; starch escapes; gelatinisation / gel forms;	[4]	

	(d)	*bread rolls* strong / hard flour; high gluten content / more than 10% protein; white flour; lighter / so rises better; plain / all-purpose flour; no chemical raising agent required / yeast is raising agent; wholemeal flour; adds NSP / adds colour / 'nutty' flavour / texture / vitamin B; *shortcrust pastry* plain / all-purpose / white / soft flour; low gluten content / no rising needed / produces more crumbly pastry; wholemeal flour / a mix of white and wholemeal flour; adds NSP / adds colour / 'nutty' flavour / texture / vitamin B; *fairy cakes* white flour; gives lighter texture / easier to raise; soft flour; low gluten content / gives spongy texture; wholemeal flour; adds NSP / adds colour / 'nutty' flavour / texture / vitamin B; self-raising flour; contains raising agent in correct proportion / gives a good rise;		
	(e)	sieving (flour); creaming (fat and sugar); whisking (egg / egg white); rolling and folding; rubbing in / rubbing fat into flour;	[3]	
8	**(a)**	toppings e.g. seeds; grated cheese; glaze of beaten egg / milk; sprinkling of flour; shaping / named shapes;	[2]	**R** any sweet suggestions
	(b)	toppings e.g. seeds; grated cheese; glaze of beaten egg / milk; use pastry leaves / shapes / lattice on top; flute / crinkle edges;	[2]	Do not allow if already used in part (a).

(c)	chocolate buttons / curls; chopped nuts; coconut; fruit; icing / butter cream / glacé / fondant; sieved icing sugar; sprinkles; sweets;

Section C

9 (a)	*reasons* more people work – convenience foods are quick / save time / effort; families eat at different times / differing lifestyles; less leisure time being spent in food preparation and cooking; less washing up; little waste; easy to store / some do not need special storage conditions – shop less often; long shelf life / good for unforeseen circumstances; more families have microwaves – less equipment needed; greater range / selection of products available; may be cheaper than making a meal from scratch - no need to buy each separate ingredient; saves fuel; loss of cooking skills – easy to prepare / include cooking instructions; can buy in one-person portion sizes – suit people living on their own / single households; likes and dislikes of family members; may taste better than when made at home; may have extra nutrients added; often have nutrition labelling for information; can enjoy food from other countries / foods out of season; persuasive marketing / advertising – encourage to buy; *concerns* take away skill of cooking / enjoyment cooking from scratch; prefer to know what is in the dish e.g. organic, fair trade; can be more expensive / need to pay for packaging; contains additives / preservatives e.g. colourings, flavourings etc. and long-term effects not known; some people allergic to certain additives; poor flavour, texture, aesthetic appeal; nutritive value may be decreased through processing / vitamins such as C and B may be destroyed by heat; often have high levels of salt, sugar, saturated fat, high energy value; often have low levels of NSP / dietary fibre; portion / serving size may be inappropriate; may not live up to advertising expectations; inability to access some packaging e.g. elderly, disabled / many products have several layers of packaging; excess packaging leads to environmental problems / deforestation / landfill space needed / cost of disposal / more litter / global warming links / harmful to animals / wildlife;	e.g. • Able to name and explain several reasons for the increased use of convenience food. • Able to name and explain several reasons for concern regarding their use. • Good examples used to illustrate. • Correct terminology used, where appropriate. • Comments precise and relevant. • Demonstrates a sound understanding of the topic. • Will have considered the question in a broad way.

(b)	*why cook food* aroma stimulates digestive juices; change texture / tenderises / softens / crisps; create new product / dish; destroy toxins and make food safe to eat; develop flavours / improve taste; enable food to rise / thicken / dissolve; give variety to diet; hot food in cold weather; improve colour / make food look more appetising; improve shelf life / keeping qualities / preserve food from decay / spoilage; kill bacteria; make food easier to eat / digest; reduces bulk in some vegetables; *grilling* does not tenderise; produces change in colour but can burn easily; meat can dry out as fat melts and drains away; surface of food quickly sealed and flavour developed; cooks unevenly unless turned; *examples of suitable cuts of meat* beef e.g. rump steak or fillet steak / lamb e.g. chops or cutlets or loin / pork e.g. loin chops or spare ribs or chump chops; *roasting* meat absorbs some of the fat unless a rack is used; tenderises and develops flavour; produces good colour; needs basting to prevent drying out; *examples of suitable cuts of meat* beef e.g. rib or sirloin or topside; lamb e.g. best end of neck or leg or shoulder or loin; pork e.g. shoulder or leg or spare rib or loin; *stewing* flavour retained; tough cheap cuts of meat can be made tender / soft; protein / collagen / connective tissue converted to gelatine; little loss of nutritive value as cooking liquid served with meal; may lack bite; *examples of suitable cuts of meat* beef e.g. flank or chuck or oxtail or shin; lamb e.g. middle neck or breast or scrag end;	• Shows good understanding of all three cooking methods. • Can explain how meat is affected by each method. [maximum 2 marks per method] • Good examples used to illustrate. [maximum 1 mark for example of each method] • Correct terminology used, where appropriate. • Comments precise and relevant. • Demonstrates a sound understanding of the topic.