CAMBRIDGE INTERNATIONAL EXAMINATIONS International General Certificate of Secondary Education

MARK SCHEME for the October/November 2013 series

0648 FOOD AND NUTRITION

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0648/11

(Written) 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 2013 series for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level components and some Ordinary Level components.



	Paç	ge 2		Mark Scheme	Syllabus	Paper	
				IGCSE – October/November 2013	0648	11	
Se	ction	Α					
1	(a)			<u>nents in fat</u> on; hydrogen; oxygen;		3 × 1 mark	[3]
	(b)	(i)	one more	<u>ounsaturated fat</u> double bond (carbon to carbon) in molecule; e hydrogen (one pair of atoms) can be taken up by t ept information in diagrammatic form)	the molecule;	2 × 1 mark	[2]
		(ii)	mor can	<u>unsaturated fat</u> e than one double bond (carbon to carbon) in mole take up more hydrogen (more than one pair of ator ept information in diagrammatic form)		2 × 1 mark	[2]
	(iii)	sing canr	<u>rated fat</u> le bonds (carbon to carbon) in molecule; not take more hydrogen; ept information in diagrammatic form)		2 × 1 mark	[2]
		exce over satu stick hea	ess fa rweig irateo ks to rt atta	roblems associated with a diet high in saturated fat at / adipose tissue stored under skin / around interna ht / obesity; d fat contains cholesterol; / narrows / blocks artery walls; ack / CHD; stroke; hypertension; esteem; breathlessness; arthritis; problems during s		3 × 1 mark	[3]
	(d)	<u>Sub</u> bile;		ce which emulsifies fat		1 mark	[1]
		glyc	prod erol; acid	lucts of digestion of fat s;		2 × 1 mark	[2]
	(f)	(i)	<u>Fing</u> villi;	er-like projections		1 mark	[1]
		(ii)		<u>em of which lacteal is a part</u> hatic system;		1 mark	[1]

Pa	age 3	Mark Sch		Syllabus	Paper	
		IGCSE – October/N	lovember 2013	0648	11	
2 (a)	formation for night keeps m healthy s growth o antioxida growth a	ucous membranes moist; skin; f bones / teeth;	s not stated in 2(c)		2 × 1 mark	[2]
(b)	milk; che liver; kidi (beta-cai carrots; t	of vitamin A eese; butter; margarine; egge ney; fish liver oils; rotene (precursor of vitamin comatoes; green vegetables apricot; pumpkin; sweet po	A) found in plants); (or named example);		2 × 1 mark	[2]
(c)	Deficienc night blir	<u>cy disease</u> idness / Xerophthalmia;			1 mark	[1]
(d)	kwashior beriberi eye diso pellagra perniciou scurvy rickets / osteopor muscle c anaemia goitre N.B. Do 2 deficie	ramps not credit nutrient without na ncy disease	protein; vitamin B vitamin B vitamin B vitamin C vitamin C vitamin D calcium; sodium ch iron; iodine;		[/] calcium;	[4]
3 (a)	Excess s tooth de enamel / obesity; organs / diabetes glucose	ts in poor supply sugar ecay; bacteria; act on suga causes gum disease / bad excess sugar converted to arteries narrow or block; hyp s mellitus; insufficient insuli remains in blood; can cause amed problems with descrip	breath; fat or adipose tissue; s pertension / CHD / stro n made; in pancreas; e circulation / eye proble	to acid; forms pl stored under skin ke; ems, etc.;	aque / disso	
(b)	excreted	orotein annot be stored; deaminatic as urea / urine; from kidney	-		en;	

used for energy; or stored as fat;

3 × 1 mark [3]

	Pa	ge 4	Mark Scheme	Syllabus	Paper	
			IGCSE – October/November 2013	0648	11	
introduc serve a encoura include use to c include include cut into parents give a v vary cou introduc		introduce serve as encourag include in use to de include a include a cut into b parents s give a va vary coo introduce offer sma	ging children to eat fruit and vegetables e at an early age e.g. stewed fruit / mashed banana; drinks, e.g. smoothies / juice; ge as healthy snacks, e.g. bananas / raisins; n packed meals, e.g. oranges / apples / sticks and dip ecorate foods, e.g. pineapple / cherries; as starters, e.g. soups; n main course dishes, e.g. casseroles / pizza / wraps as desserts, e.g. fruit fool / fruit salad / kebabs; bite size / interesting / creative shapes, e.g. dice, stars set an example by eating with children; ariety of flavour / texture / colour; king method; e new types of fruit and vegetables on a regular basis all portions; should include an example to illustrate point made	; s, etc.;	4 × 1 mark	[4]
	(b)	only plan contains soya pro TVP / ma shaped (low in fat	ace of soya in vegan / strict vegetarian diet at source of HBV protein; all indispensable amino-acids; ducts / flour / tofu / milk / tempeh; ade to resemble or replace meat by added colours an e.g. into sausages / burgers / chunks / mince); t / no cholesterol; / easy to store / easy to cook;	id flavours;	4 × 1 mark	[4]
				[Se	ction A Total: 40]	

[Section A Total: 40]

Page 5	Mark Scheme	Syllabus	Paper
	IGCSE – October/November 2013	0648	11

Section B

5	(a)) Safety when frying deep pan – enough room for oil and food – space for turning food without overflowing – pan no more than half full of oil – does not overflow when food added – lower food into pan gently – to avoid splashing fat – do not overfill pan with food – danger of overflowing – do not overheat fat – monitor temperature of fat – may ignite – make sure food is dry – water turns to steam and splutters – make sure equipment is dry – danger from splashing – pan handle turned in – in case it is knocked over – back burner if possible – less chance of being knocked over – flat base on frying pan – so it sits securely on hotplate – do not leave unattended – may ignite / overflow – turn heat off if fat begins to smoke – fat is near flash point – have cover / lid nearby – in case of fire – do not move pan when fat is hot – oven gloves when holding pan handle – may be hot / fat may splash – pan should fit burner / flame should not lick around edge of pan –		
		High good understanding including 8 or more points	rks 4–5 2–3 1	[5]
	(b)) Personal hygiene in the kitchen wash hands – before/after handling all foods / after toilet / – to avoid cross-contamination – do not cook if ill / no coughing / sneezing over food – so bacteria are not passed to others – tie back / cover long hair – bacteria from hair could get into food – no long fingernails – dirt / bacteria collect underneath – remove nail varnish – remove rings – clean apron / no outdoor clothes – to avoid transfer of bacteria from outside – do not touch face/body during food preparation – bacteria from skin could get onto fo cover cuts/wounds with waterproof dressings – bacteria could get into food – no licking spoons / fingers – bacteria from mouth transferred to food – handle food as little as possible – avoids transfer of bacteria –	ood –	
			rks 4–5	

	marite
High good understanding including 8 or more points	4–5
Medium some understanding and 4–7 points	2–3
Low little understanding, has mentioned 1–3 points	1
	[5]

Page 6	Mark Scheme	Syllabus	Paper
	IGCSE – October/November 2013	0648	11

(c) Advantages and disadvantages of small electrical kitchen equipment

Advantages

save time – save labour / effort / energy – save fuel e.g. microwave – may be more efficient / thorough – can cope with large quantities – can do a range of jobs – blender can make soup / mayonnaise / breadcrumbs – attachments available to extend use – dough hook / whisk – can be used in different containers / mixing bowl / pan – can use anywhere where there is a power supply / portable – need not hold when in use – free-standing mixer for bread, cake mixture –

Disadvantages

initial cost – cost of electricity to operate – may buy and not use – difficult to assemble – may be difficult to clean – care needed not overfill liquidiser – danger of burns with hot equipment – danger of sharp blades – do not use near water – caution needed for loose wires – electric shocks – specialist to repair – added cost – need suitable storage space – must use where no-one will trip over trailing flexes –

MARK BANDS	Marks	
High good understanding including 8 or more points	4–5	
Medium some understanding and 4–7 points	2–3	
Low little understanding, has mentioned 1–3 points	1	
(For full marks must include both advantages and disadvantages)		[5]

6 (a) Planning meals

climate / time of year - e.g. hot meals in cold weather equipment available - e.g. may need freezer for dessert / special baking tins vary colour - e.g. not mince and potatoes followed by chocolate dessert vary flavour - e.g. not fish with lemon sauce followed by lemon meringue pie vary texture – e.g. avoid pastry in two courses / do not repeat cooking methods – meals should be attractive - e.g. use garnishes / decorations / colourful vegetables cost - e.g. use LBV protein / eggs / cheap cuts of meat season – e.g. use fruit and vegetables in season when they are cheaper – availability of food - e.g. use left-overs / garden produce / local produce / shops skill of cook - e.g. may not know how to make choux pastry time available - e.g. may need to use guick methods / convenience foods likes and dislikes - e.g. avoid food / flavours not enjoyed health – e.g. low fat / low sugar / low salt – allergies - e.g. nuts / lactose / gluten ages of people taking meal - e.g. old may need easily digested food activity / occupation - e.g. manual workers may need greater quantity of food occasion - e.g. birthday party / packed meal / Christmas lunch / breakfast / supper etc. consider whole meal - e.g. not an elaborate first course then simple dessert number to serve – e.g. quantity required to have enough food / to avoid waste – religion - e.g. Hindus do not eat beef / Jews do not eat pork vegetarians - e.g. varied food requirements of vegans, lacto-vegetarians, etc. gender - e.g. females require additional iron / men need more calories -3 points 3×1 mark 3 × 1 mark 3 explained examples [6]

Page 7	Mark Scheme	Syllabus	Paper
	IGCSE – October/November 2013	0648	11

(b) <u>Meals for teenage girls</u>

HBV protein	growth spurt / production of hormones / repair;
iron	menstruation / increased volume of blood / prevent anaemia;
Vitamin C	absorption of iron;
calcium	bone growth;
Vitamin D	absorption of calcium;
starch / fat	energy;
Vitamin B	release energy from carbohydrates;

do not credit nutrient without function

4 × 1 mark [4]

[6]

(c) <u>Saving fuel when cooking meals</u>

cut potatoes into smaller pieces – less cooking time – less fuel – do not preheat oven more than 10 minutes – switch off when not in use – switch off burners when not in use – switch off electric oven before end of cooking – use residual heat – cook only the amount of food required – to avoid reheating –		
have flat-based pans – to have good contact between hotplate and pan – boil only amount of water needed for tea – choose materials which are good conductors of heat for pans – cast iron / coppe match size of pan to size of hotplate – use divided pans use convenience foods – use tender cuts of meat – tenderise meat before cooking – don't cook separate meals for everyone in the house –	r —	
	Marka	

MARK BANDS	Marks	
High good understanding including 8 or more points	4–5	
Medium some understanding and 4–7 points	2–3	
Low little understanding, has mentioned 1–3 points	1 [5]

7 (a) <u>Nutrients in eggs</u>

protein; (or named e.g. ovalbumin / mucin / vitellin) – growth / repair / energy / hormone production; fat; energy / insulation / warmth / fat-soluble vitamins / protection of internal organs; Vitamin A / retinol; visual purple / night vision / mucous membranes / skin / growth; Vitamin D / cholecalciferol; absorption of calcium / bones and teeth; Vitamin B2 / riboflavin (or Vitamin B); release of energy from nutrients; iron; haemoglobin / transport of oxygen / cell respiration / prevent anaemia; phosphorus; bones and teeth; 3 nutrients 3 functions 3 × 1 mark

Page 8	Mark Scheme	Syllabus	Paper
	IGCSE – October/November 2013	0648	11

(b) Storage of eggs

cool place / refrigerator (keeps longer); not too dry (water will evaporate through shell); in egg box / crate / special rack in fridge door (less easily broken); do not store past expiry date (not safe to eat); do not freeze whole eggs (liquid inside shell expands and cracks shell); freeze only if separated (add sugar or salt to egg whites); do not wash shells (removes protective cuticle so bacteria can enter); round end upwards / air space at top (to hold yolk in place); check for cracked eggs (bacteria enter so egg is contaminated); use in rotation (to prevent waste); keep away from strong smells / onion / fish (absorb smell through pores in shell); **3 × 1 mark** [3]

- (c) Uses of eggs with examples main dish / breakfast / snack; omelette, boiled, scrambled, poached egg; trapping air / making mixtures rise; Swiss roll, sponge flan; mousse, meringue, soufflé; lightening; thickening; custard, sauces, soup etc.; setting; quiche, rich cakes, baked egg custard; emulsifying; mayonnaise, rich cakes etc.; croquettes, fish cakes, stuffing, rich pastry; binding; Scotch eggs, fish fillets; coating; pastry, bread; glazing; enriching; sauces, milk pudding, soup; garnishing; sliced hard-boiled egg on salad; adding colour; pastry, cakes; 2 uses 2 × 1 mark 2 examples 2 × 1 mark [4]
- (d) <u>Changes when an egg is boiled</u> egg white thickens / changes from transparent to opaque; protein coagulates / sets / solidifies / hardens; becomes rubbery / indigestible if overcooked; yolk thickens; yolk becomes powdery when overheated; green ring forms around yolk (iron / sulphur reaction);

2 × 1 mark [2]

[Section B Total: 45 marks]

Page 9	Mark Scheme	Syllabus	Paper
	IGCSE – October/November 2013	0648	11

8 (a) Most accidents in the home occur in the kitchen. Discuss reasons for this and ways of prevention.

[15]

The answer may contain the following knowledge and information.

<u>Knives</u>

store out of the reach of children – store in sheath or knife block or with cork on point – keep separate from other cutlery – keep well sharpened – blunt knives can slip and cause injury – use on a chopping board – do not cut on palm of hand – cut away from the body – use size and knife appropriate to task – carry with blade pointing down towards the floor – wash individually – do not put into washing up water with other cutlery – wash with back of knife towards hand (also dry this way) –

Deep frying

pan not more than half full – prevent overflowing when food is added – dry food before adding to fat – water turns to steam – spits – dry utensils – wooden handles on pans / utensils – poor conductor of heat – prevents burning hands – pan should have a flat base – does not wobble on hotplate – do not overfill pan with food – may overflow – do not overheat fat – may ignite – have lid nearby – cover if ignites – prevents oxygen reaching flames – do not move pan if on fire – no water nearby – e.g. kettle – water may splash into fat – causes spitting – do not leave unattended – do not allow children to fry – make sure dangers are understood – turn off heat after use – do not move pan until fat is cold – monitor temperature of oil – use electric deep fat pan – temperature thermostatically controlled –

Electrical equipment

plugs should be wired correctly - if not do not use - use a professional to do it do not attempt to wire unless sure of method - no bare wires do not use near flames - will melt covering and expose wires do not stretch / put strain on wire during use keep appliances to back of bench - out of reach of children do not leave flexes hanging where they could be tripped over use of coiled flexed prevents trailing wires use correct fuse for appliance plug should not be broken e.g. no screws missing do not touch with wet hands switch off appliance at socket before removing plug do not overload socket by using adapters follow manufacturer's instructions do not put motor near water when washing up wipe with damp cloth when unplugged keep hands / fingers away from blades when using and when washing up - safer to use a brush to clean blades -

IGCSE – October/November 2013 0648 11 Other points pan handles turned in – use pan guard – steam from kettle pointing towards wall – oven gloves to remove items from oven / hold pan handles etc. – keep face away from pan / tilt lid away from worker when removing lid of steamer – sleeves rolled up / ties tucked in / no loose clothing – hair tied back / covered – in case they become tangled with equipment / catch fire – avoid high heels / open sandals / slippers – wipe up spills immediately – no loose mats / torn lino / broken floor tiles in kitchen – cause tripping – keep floor area clear – do not have highly polished floor– non slip floors – keep cleaning materials away from food – not in empty food containers – label – make sure tops cannot be removed by children – do not store heavy items on high shelves – avoid stacking equipment where it could fall – do not store items used frequently where they cannot be reached easily – use kitchen stool or chair to reach high cupboards / shelves – do not hang tea towels near cooker – no curtains near cooker – no curtains near cooker – do not run –
pan handles turned in – use pan guard – steam from kettle pointing towards wall – oven gloves to remove items from oven / hold pan handles etc. – keep face away from pan / tilt lid away from worker when removing lid of steamer – sleeves rolled up / ties tucked in / no loose clothing – hair tied back / covered – in case they become tangled with equipment / catch fire – avoid high heels / open sandals / slippers – wipe up spills immediately – no loose mats / torn lino / broken floor tiles in kitchen – cause tripping – keep floor area clear – do not have highly polished floor– non slip floors – keep cleaning materials away from food – not in empty food containers – label – make sure tops cannot be removed by children – do not place other liquids in empty soft drink bottles – avoid stacking equipment where it could fall – do not store heavy items on high shelves – avoid stacking equipment where it could fall – do not store items used frequently where they cannot be reached easily – use kitchen stool or chair to reach high cupboards / shelves – do not hang tea towels near cooker – no curtains near cooker –
know exactly what you are doing at all times – read / understand instructions – no tablecloths hanging – small children can pull them down – well lit kitchen – take care when using pressure cooker – take care in kitchen at all times / keep focused – use correct equipment for job e.g. don't use a knife to open a can – well planned kitchen layout to avoid excess movement – switch off cooker / appliances when finished – do not use metal in a microwave – service electrical appliances regularly – keep cupboard doors / ovens closed –

Can identify many causes of accidents Suggests ways to avoid accidents Is able to identify and discuss several areas where accidents occur Gives examples to illustrate points made Answers are detailed where appropriate Understanding of the topic is apparent Information is specific Information is usually accurate All areas of the question addressed Some specific facts included and the topic is addressed in its widest application	11–15 1	15
Some causes of accidents identified May give some advice on avoiding accidents Is able to identify a few areas where accidents occur Some discussions or explanations given Gives a few examples to illustrate points made	6–10	
	Suggests ways to avoid accidents Is able to identify and discuss several areas where accidents occur Gives examples to illustrate points made Answers are detailed where appropriate Understanding of the topic is apparent Information is specific Information is usually accurate All areas of the question addressed Some specific facts included and the topic is addressed in its widest application Some causes of accidents identified May give some advice on avoiding accidents Is able to identify a few areas where accidents occur Some discussions or explanations given	Suggests ways to avoid accidentsIs able to identify and discuss several areas whereaccidents occurGives examples to illustrate points madeAnswers are detailed where appropriateUnderstanding of the topic is apparentInformation is specificInformation is usually accurateAll areas of the question addressedSome specific facts included and the topic isaddressed in its widest applicationSome causes of accidents identifiedMay give some advice on avoiding accidentsIs able to identify a few areas where accidents occurSome discussions or explanations given

Page 11	Mark Scheme	Syllabus	Paper
	IGCSE – October/November 2013	0648	11
Low	Shows a basic understanding of the topic Information is basic but generally accurate Not all areas of the question addressed Gaps in knowledge will be apparent May be few specific facts Answers will be detailed in parts and superficial in Overall lack of detail Some inaccurate information Information is not always precise Has a sound knowledge of some aspects May give a few causes of accidents Little information on avoiding accidents Mentions some areas where accidents occur May give examples to illustrate Answer tends to be a list of statements Information is general Answer will probably be brief Not always accurate Emphasis is on one aspect of question Lack of knowledge will be apparent	n others 0–5	
(b) The ki Discu	itchen should be a well-planned area in which to ss:	work.	
(i) di	fferent ways of arranging the cooking area;		
(ii) th	e choice of kitchen surfaces.		ſ

The answer may contain the following knowledge and information.

(i) Arranging the cooking area

has to accommodate sink – cooker – refrigerator – storage space – work surfaces – equipment should be in a logical order – ergonomic – work triangle – to form a continuous working area – to suit sequence of working – food storage \rightarrow preparation \rightarrow cooking \rightarrow serving \rightarrow clearing up – arrangement should not waste time – and energy – moving about from one area to another – excessive bending and stretching avoided – in order to use equipment – U-shaped – L-shaped – galley / parallel lines plan / island – (can show on diagrams) work surfaces on either side of cooker – sink – and refrigerator – cupboards / refrigerator etc. under work surface – space to put dishes from oven – or dishes after being washed – or space to prepare dishes near cooker –

(ii) Kitchen surfaces

worktops needed on either side of sink – and hob – to give a continuous work surface – avoid carrying hot pans – sinks and hobs can be fitted into worktops – for smooth flow of surface – should be at a comfortable height for working – to avoid stretching – or stooping – should be no gaps between surface and equipment – behind sink – or where work surface meets walls –

Page 12	Mark Scheme	Syllabus	Paper
	IGCSE – October/November 2013	0648	11

which would trap food – and attract bacteria – contaminates food – can be made of plastic / Formica covering chipboard / wood / melamine marble - granite - stainless steel - wood - ceramic tiles smooth - hard-wearing - easy to clean - heat-resistant - non absorbent stain-resistant - resistant to household cleaning agents - and grease often made with a rolled edge - more comfortable to lean against less likely to chip - colour to suit décor of kitchen protect surface from damage - avoid burning plastic / scorching wood walls must be easy to clean - withstand moisture / condensation avoid gloss paint to reduce condensation - cool colour plastic / vinyl coated wallpapers - attractive - easy to change floor should not be slippery - not damaged by water - easy to clean clay tiles - linoleum - no loose mats - danger of tripping wash surfaces with hot, soapy water - to remove food and grease and prevent attracting insects etc. - sugar attracts ants remove food which could stain quickly - e.g. curry sauce -

(b)	Band	Descriptor	Part mark	<u>Total</u>
	High	Can identify at least 2 ways of arranging kitchen May illustrate with diagrams Identifies processes taking place in kitchen Knows that time and energy are saved Gives examples to illustrate points made Answers are detailed where appropriate Considers materials for most kitchen surfaces Gives advantages of materials chosen Understanding of the topic is apparent Information is specific Information is usually accurate All areas of the question addressed Some specific facts included and the topic is addressed in its widest application	11–15	15
	Middle	Can identify at least 1 way of arranging kitchen May illustrate with diagrams May identify processes taking place in kitchen Possibly mentions saving time and energy Considers some materials for kitchen surfaces Little further information May give examples to illustrate points made Shows a basic understanding of the topic Information is basic but generally accurate Not all areas of the question addressed equally Gaps in knowledge will be apparent May be few specific facts Answers will be detailed in parts and superficial in others Overall lack of detail Some inaccurate information Information is not always precise Has a sound knowledge of some aspects	6–10	

Page 13	Mark Scheme	Syllabus	Paper
	IGCSE – October/November 2013	0648	11
Low	May give ways of arranging kitchen Possibly shows by diagrams May not mention processes taking place in kitchen May not mention saving time and energy May list suitable materials for surfaces Probably gives no advantages or disadvantages Few examples to illustrate points made Answer tends to be a list of statements Information is general Answer will probably be brief Not always accurate Emphasis is on one aspect of question Lack of knowledge will be apparent	0–5	
		[Secti	on C Total: 1

[Total for Paper: 100]