



Cambridge International Examinations
Cambridge Ordinary Level

FOOD AND NUTRITION

6065/12

Paper 1 Theory

October/November 2016

MARK SCHEME

Maximum Mark: 100

Published

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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 than usual)
- **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

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Question	Answer	Marks
1	contains <u>all</u> nutrients in the correct proportion / amount;	1

Question	Answer	Marks
2(a)	oxygen – hydrogen – carbon – nitrogen – sulfur –	2
2(b)	mixture of HBV and LBV protein (in same meal); mixture of different LBV protein (in same meal); essential amino acids / IAA lacking in one can be compensated by the other; improves supply of essential amino acids / IAA; rice pudding; scrambled egg on toast; beans on toast; lentil soup and bread roll; meatballs and spaghetti; egg curry and rice; egg fried rice; macaroni cheese; rice and peas; peanut butter sandwich; cereal and milk; cheese sandwich; chocolate mousse with gelatine;	4
2(c)	growth / build new tissue; repair; maintenance / renewal; energy; manufacture of antibodies / enzymes / hormones;	3
2(d)	marasmus; kwashiorkor;	2
2(e)	protein cannot be stored; deamination / removal of amino group from an amino acid; nitrogen from amino acids is converted into ammonia; liver converts ammonia to urea; kidneys excrete urea in urine; remainder is used for energy / <u>converted</u> to glucose / stored as fat (under the skin) / stored as adipose tissue / stored around internal organs; gain weight / may lead to obesity / CHD;	3

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Question	Answer	Marks
2(f)	chemical structure denatured / changed; this is permanent / irreversible; coagulation / setting occurs; overheating causes food to become less digestible;	2
2(g)(i)	<u>pepsin</u> ;	1
2(g)(ii)	<u>rennin</u> ;	1
2(g)(iii)	<u>trypsin</u> ;	1
2(g)(iv)	<u>erepsin</u> ;	1

Question	Answer	Marks
3(a)	formation / production / component of haemoglobin / red pigment in blood / red blood cells; transports oxygen to cells / in blood / cell respiration; prevents anaemia;	1
3(b)	helps to form hydrochloric acid; needed for correct composition of body fluids;	1
3(c)	prevents goitre; makes hormone thyroxine in thyroid gland; <u>controls rate</u> of metabolism / energy usage;	1
3(d)	needed for energy production; development / maintenance of bones and teeth (with calcium); regulates acid balance in body;	1

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Question	Answer	Marks
4(a)	production of visual purple; helps vision in dim light; healthy skin; formation of mucous membranes; keeps mucous membranes moist; helps to resist infection; antioxidant; prevents night blindness / xerophthalmia; normal growth in <u>children</u> ;	2
4(b)	apricots – asparagus – basil – bok choy – broccoli – Brussels sprouts – butter – capsicum / red / yellow / green pepper – carrot – cheese – crab-cream – eggs – fish liver oil – grapefruit – green leafy vegetables – kale – kidney – lettuce – liver – lobster – mango – margarine – melon – milk – oily fish – papaya – parsley – peas – plum – pumpkin – red meat – salmon – sardine – shrimp – spinach – squash – sweet potato – Swiss chard – tomatoes – tuna – watercress – yogurt –	1

Question	Answer	Marks
5(a)	seeds / named examples – nuts / named examples – pulses / legumes / named examples – dried fruit / named examples – <u>wholegrain</u> cereals – maize – <u>wholegrain</u> breakfast cereal – brown rice – wholemeal / brown pasta – fruit / named examples – vegetables / named examples – wholemeal bread – wholemeal flour – oats – bran – rye / named examples –	2

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Question	Answer	Marks
5(b)	adds bulk; absorbs water (in colon); softens faeces; helps prevent constipation; makes it easy to remove faeces / regularly; stimulates peristalsis (and helps to clear waste); binds food residues / helps to remove toxins; can reduce blood cholesterol; gives feeling of fullness / limits intake of carbohydrates / helps control weight; help lower blood glucose levels; helps prevent hernia; helps reduce risk of colon cancer / bowel cancer; helps prevent diverticular disease; helps prevent haemorrhoids; helps prevent varicose veins;	5

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Question	Answer	Marks
6	<p>protein – repair /body-building; low-fat diet /do not fry food – difficult to digest fat; low energy – not as active; iron – replace blood lost; vitamin C – absorb iron /heal wounds / antioxidant /protect immune system; calcium after fractures etc. – <u>repair</u> damaged bone /prevent osteoporosis – lack of movement / elderly more at risk; vitamin D – absorb calcium; small, frequent portions – easier to digest /breaks monotony /appetite reduces with age; meal must be small but nutritionally dense as appetite diminished; provide a variety of colour /texture /flavour – tempt appetite; not too highly flavoured /spicy – difficult to digest; not a strong aroma – so not off-putting /make feel ill; follow doctor’s advice; do not serve raw eggs /lightly cooked eggs – salmonella risk; consider ethnic /cultural /religious /personal preference – respect /provide acceptable meals which will be eaten to help recovery; remove bones – poor eye sight /choking /easier to eat; soft /tender food – no teeth /false teeth; light (steamed) food – easy to digest; purée food /small pieces – easier to chew; increase liquids – prevent dehydration; ensure high hygiene standards to avoid infection when immune system is already weak; no leftovers to avoid possibility of food poisoning;</p>	5

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Question	Answer	Marks
7	bicarbonate of soda; gingerbread; bicarbonate of soda plus an acid (acetic, tartaric, lactic, citric)/buttermilk; scones; baking powder; cake / scones / suet pastry; self-raising flour; suet pastry / cakes / scones; yeast; bread / pau;	6

Question	Answer	Marks
8	to make it safe to eat; e.g. bacteria in meat killed by heat / milk pasteurised; to destroy natural toxins; e.g. red kidney beans; give hot food in cold weather; e.g. soup in winter; reduces bulk of food; e.g. cooked green vegetables; to make food easier to eat / chew; e.g. meat is tenderised / cooked fish easier to chew; makes food more digestible / easier to digest; e.g. cooked starch (potato / rice / pasta) digested more easily than raw; to make food more attractive / appetising / changes colour of food; e.g. meat from red to brown / crust on bread; develop / change texture; e.g. egg sets on heating; improve / change flavour; e.g. extractives in meat developed during cooking; smell stimulates flow of digestive juices; e.g. curry, fried bacon; add variety of foods; e.g. eggs can be poached / fried / boiled / scrambled; preserves food / prevents spoilage; e.g. jam / pickles / condensed milk; necessary for some cooking processes; e.g. thickening sauces / baking;	10

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Question	Answer	Marks
9	<p><i>convection</i> through movement of liquids and gases; liquid / gas becomes less dense and rises; colder liquid / gas particles fall; they are heated again; convection currents; until a constant temperature is reached; e.g. boiling potatoes / steaming fish / baking a cake;</p> <p><i>radiation</i> electromagnetic rays; from source of radiation / microwaves / heat travels in straight lines; through space or vacuum / without a medium; fall onto food in their path; infra-red / microwave rays absorbed by food; space between heat source and food is not heated; food needs to be turned; e.g. grilled steak / spit-roasted chicken / suitable dish cooked in the microwave;</p>	8

Question	Answer	Marks
10(a)	creaming / rubbed-in;	1
10(b)	<p><i>sugar</i> bulk; <u>sweeten</u>; aeration; texture; colour / caramelisation;</p> <p><i>butter</i> colour; flavour / taste / enriches; extends shelf life / makes them last longer; smell / improves aroma; increases moisture / prevents drying out; shortens flour mixture / improves texture / mouth feel;</p>	2

Page 10	Mark Scheme	Syllabus	Paper
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Question	Answer	Marks
10(c)(i)	use alternative / non-gluten flour / amaranth flour / buckwheat flour / maize flour / gram flour / potato flour / soya flour / rice flour / coconut flour / almond flour / oat flour;	1
10(c)(ii)	reduce amount of sugar used; use alternative to sugar / sugar substitute;	1
10(c)(iii)	use (poly) <u>unsaturated</u> fat alternative / swap butter to (poly) <u>unsaturated</u> margarine;	1
10(d)	store in sealed / airtight container / box / bag; to prevent them becoming soft and soggy / to keep them crisp by prevention absorption of moisture from the air / to prevent pests from entering the box; make sure the biscuits are cool before putting in the tin; to avoid condensation making the biscuits soggy;	2
10(e)	cocoa powder; chocolate chips; vanilla essence; almond essence; chopped nuts; cinnamon; ginger; mixed spice; dried fruit (or named example); glacé cherries; coconut; grated citrus zest; lavender; lemon balm; oats; wholemeal flour;	2

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Question	Answer	Marks
11(a)	<p>select a reliable brand / good quality – for value for money;</p> <p>choose variety of sizes for different purposes, e.g. peeling, chopping – certain knives are suitable for certain purposes;</p> <p>(if not fully forged) handle should be strong / firmly fixed / riveted / comfortable / easy-to-grip / well balanced – for ease of use;</p> <p>blade should be rigid / resist corrosion / resist staining / resist chipping – safety / hygiene / long life;</p> <p>stainless steel is hard wearing – long life / value for money;</p> <p>blade able to be sharpened – for safe, efficient cutting;</p> <p>price – fit within a budget;</p> <p>colour-coded for specific foods – to avoid cross-contamination;</p> <p>colour – kitchen aesthetics;</p> <p>weight and balance of knife should be comfortable to hold and use to prevent fatigue;</p> <p>electric / battery carving knife;</p>	3
11(b)	<p>chop on wood / acrylic board – to prevent the knife blunting quickly;</p> <p>store with blade pointing downwards in a knife block / with sheath / in a cork / magnetic wall rack / knife roll – to prevent damage;</p> <p>wash in hot soapy water / dishwasher – to ensure it is clean / to avoid cross-contamination / to ensure it does not rust / corrode;</p> <p>dry thoroughly – so it does not rust / corrode;</p> <p>only use for purpose intended (not opening tins, etc.) – to increase life of knife;</p> <p>sharpen regularly – use effectively / safety;</p>	2

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Question	Answer	Marks
11(c)	<p>if available use a kitchen waste disposal unit – decreases size of the waste / rapid disposal; do not pour fat down drains / do not leave rubbish in the sink – blockages occur / attracts vermin; do not leave food on work surfaces / floor / sink – prevent vermin / insects; do not allow bin to overflow / empty regularly – to prevent animals / vermin / insects; recycle paper / glass / aluminium if possible – to reduce the amount of waste / better for environment; food waste – used for compost; food waste – used for feeding animals; wash / disinfect all bins regularly / dry bins thoroughly – hygiene / prevent attracting mosquitoes; use a bin liner / wrap all waste – prevent leakage / flies; cover bin tightly – prevent attracting flies or vermin / prevent smell; keep outside bin away from the house / away from open windows – so flies do not get into house;</p>	4

Question	Answer	Marks
12(a)	<p><i>nutritive value of eggs [max 5]</i> HBV protein – growth / repair / maintenance / energy / hormones / enzymes; fat – saturated – energy / warmth / vitamin A / vitamin D; vitamin A / retinol – visual purple / prevent night blindness / healthy skin / mucous membranes; vitamin D / cholecalciferol – absorption of calcium / bones and teeth / prevent rickets or osteoporosis; vitamin B₂ / riboflavin (or vitamin B) – release energy from carbohydrates / growth / nerve function; iron – haemoglobin / transport oxygen / release energy from glucose / prevent anaemia; phosphorus – works with calcium / formation of bones and teeth / formation of protoplasm;</p> <p><i>storage of eggs [max 5]</i> cool temperature / refrigerator – slow down bacterial growth; store round end up – to keep yolk in the centre; do not wash shell – this removes the protective coating removed; do not freeze whole egg in shell / freeze white and yolk separately; store away from strong-smelling foods – porous shell absorbs smell; store away from raw meat / fish – to avoid cross-contamination;</p>	15

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Question	Answer	Marks
	<p>use stock rotation / check best-before dates – best quality; do not store cracked eggs – danger of cross-contamination; special egg rack / carefully – prevent breakage;</p> <p>relevant points linking storage to usage; remove the eggs from a cold place if going to be creamed / whisked to give better results;</p> <p><i>uses of eggs [max 5]</i> main dish / breakfast / snack – omelette / scrambled / boiled / poached; thickening – protein coagulates at 60 °C – custard / sauces / soup / lemon curd; binding – protein sets, holding ingredients together – stuffing / beef burgers / croquettes / rissoles; setting – protein sets / coagulates – quiche / egg custard; coating with breadcrumbs or flour – protein sets around food / forms a seal / keeps out fat / protects from heat / stops food falling apart – Scotch eggs / fried fish; raising agent – whole egg whisked with sugar – Swiss roll / sponge flan; lightening – traps air – meringue / soufflé; emulsifying – holds oil and vinegar in suspension – mayonnaise / rich cakes; glazing – white / yolk / whole egg – brown / shiny surface on pastry dishes / bread; enriching – adds nutrients to a dish – sauces / milk pudding / mashed potatoes; garnishing – salad / soup / dressed crab; clarifying – whisked egg white folded into consommé; decorating – royal icing;</p>	
12(b)	<p><i>types of convenience foods [max 3]</i> frozen – peas / ice cream / fish fingers / chips / burgers; canned / tinned – peaches / salmon / baked beans / soup; dried – instant dessert / custard powder / stock cubes / milk / herbs / fruit / pasta; ready to eat – biscuits / crisps / meat pies / yoghurt / sausage roll / bag of salad; ready to cook – pasta / prepared vegetables / filleted fish / cook-chill; bottled – ketchup / fruit juice / pasta sauces;</p> <p><i>reasons for packaging convenience foods [max 5]</i> hygienic storage when people are handling the food / may be stored in a warehouse with vermin;</p>	15

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Question	Answer	Marks
	<p>to protect it from damage during storage and transport/easier to transport/safe transportation; to provide/give information to consumer; to attract customers/enhance appearance/marketing; to prevent tampering; can be used during reheating of food; to reduce waste by protecting from damage, e.g. eggs in cartons; to extend the life of a product by canning/MAP; some foods have to be sold in prescribed amounts, e.g. butter; to prevent contamination from dust/flyes/pests/bacteria;</p> <p><i>reasons why some people prefer not to use convenience foods [max 7]</i> enjoy cooking using fresh ingredients prefer fresh food; prefer to know what is in the dish, e.g. organic/fair trade; can be more expensive than fresh equivalent/processing/packaging/labour add to cost; packaging – may cause pollution; small portions – may need to buy extra/add other dishes to meal; must follow instructions carefully – for good results; high in sugar – dental caries/obesity; high in fat – CHD; high in salt – hypertension/blood pressure; low in NSP – needed for healthy digestive system; contain artificial additives/colourings/flavourings/preservatives/long-term effects not known; may contain allergens – some people allergic to certain additives; loss of cooking skills; vitamin C/vitamin B – may be destroyed by heat during processing; poor flavour/texture/aesthetic appeal – not appealing to the consumer; may not live up to advertising expectations;</p>	