

Cambridge International Examinations

Cambridge International General Certificate of Secondary Education

FOOD AND NUTRITION 0648/11

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 irrelevantecf error carried forward

• **AW** alternative wording (where responses vary more than usual)

AVP alternative valid pointORA or reverse argument

• <u>underline</u> 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

Page 3	Mark Scheme	Syllabus	Paper
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Question	Answer	Marks
1(a)	carbon – hydrogen – oxygen –	1
1(b)	vitamin A; vitamin D;	2
1(c)	saturated fat all carbon atoms are saturated with hydrogen atoms; (carbon-carbon) single bonds; usually solid at room temperature; usually from animal foods; polyunsaturated fat can take up more hydrogen; more than one (carbon-carbon) double bond in molecule; liquid/oil at room temperature; usually plant – or fish origin;	1
1(d)	sesame seed oil – sunflower seed oil – maize/corn oil – palm oil – peanut/groundnut oil – oily fish (or named example) – fish <u>liver</u> oil (or named example) – soya bean oil – safflower – flax seed – pine nuts – walnut oil – hazelnut oil – cotton seed – canola oil – castor oil – grapeseed – poppy seed –	2
1(e)	eat less red meat – e.g. beef/pork/lamb; substitute <u>red</u> meat with soya products/TVP; trim fat from meat/remove skin from chicken; choose white meat/fish; do not fry foods in lard/butter/dripping – use plant oils instead;	5

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Question	Answer	Marks
	reduce consumption of chocolate; eat fewer cakes/biscuits/pastries; avoid avocado; eat fewer eggs; eat less butter/cheese; choose low-fat versions of products, e.g. yoghurt/cheese; use skimmed milk; spread butter thinly; do npt put butter on vegetables when serving/mashing potatoes/use margarine/oil; change from butter to margarine when cooking/spreading;	
1(f)	frying – corn oil/sunflower oil; roux/sauce-making – margarine/butter; aeration/creaming – margarine/butter traps air when creamed with sugar in cakes; pastry-making – holds layers apart in flaky pastry; flavour in cake-making – butter/margarine; rubbing in/shortening – margarine/butter/white fat; improve keeping quality – butter used in rich cakes; dressings – oil in French dressing; form an emulsion – olive oil in mayonnaise; basting – dripping/oil adds moisture to meat cooked by dry heat/grilled/roasted; make vegetables crispier by roasting – lard; decorating – butter icing; prevent sticking/greasing – oiled baking tins; colour (in pastry/cakes/scones) – butter/margarine;	5

Page 5	Mark Scheme	Syllabus	Paper
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Question	Answer	Marks
1(g)	melts; bubbles as water driven off; darkens in colour; splits into fatty acids and glycerol/separates; bluish haze given off; ignites/burns;	3
1(h)(i)	emulsifies fat;	1
1(h)(ii)	converts fat to glycerol; and fatty acids;	2

Question	Answer	Marks
2(a)	wholegrain/wholemeal cereals – wholemeal cereal products/wholemeal bread – wheat germ – yeast and yeast extracts/Marmite – <u>red</u> meat – liver – fish roe – milk and dairy foods – bran – nuts/named nut – oats – eggs – legumes/beans/peas/pulses – asparagus – Brussel sprouts – spinach – sesame seeds – sunflower seeds – named fortified food – potatoes – kidney –	1
2(b)	failure to grow/stunted growth/retarded growth; skin lesions/cracks in skin; dermatitis; conjunctivitis/blurred vision/itchy eyes/sore eyes; swollen tongue; sore/dry cracked skin around mouth/lips; throat swelling/soreness;	3

Page 6	Mark Scheme	Syllabus	Paper
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Question	Answer	Marks
2(c)	growth; release of energy; formation of red blood cells; prevent pernicious anaemia; aids metabolism/metabolism of amino acids; maintenance of healthy nerve cells; production of DNA/RNA/works with folic acid;	2

Question	Answer	Marks
3(a)	makes hormone thyroxine; controls rate at which energy is used/controls rate of metabolism; prevents goitre/swelling of thyroid gland in the neck;	1
3(b)	goitre;	1
3(c)	seafood/salt water fish/named example – seaweed – milk – cheese – green (leafy) vegetables – cod liver oil – vegetables grown near the sea – iodised salt/iodised water –	1

Question	Answer	Marks
4(a)	seeds/named seeds – nuts – pulses/legumes – beans – peas – named examples of pulses –fruit/dried fruit/named fruits – vegetables/named vegetables – wholemeal bread – wholegrain cereals – maize – wholegrain breakfast cereal – brown rice – wholemeal pasta – wholemeal flour – oats – bran – rye –	2
4(b)	higher cholesterol;	6

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Question	Answer	Marks
	constipation; higher blood sugar; hernia; cancer of colon/bowel cancer; diverticular disease; haemorrhoids/piles; varicose veins; accumulation of toxins; lack of satiety;	

Question	Answer	Marks
5(a)	to provide food when supply is limited/times of need; to enjoy food out of season; to give variety/new products made, e.g. jam, pickles; to cope with a glut/prevents waste/use when plentiful; to prevent food spoilage/decay/prevent the growth of yeast/mould/bacteria; to allow food to be transported from area to area/between countries; to save money by making use of food when cheap; to use in emergencies/famine/war; to retain as many of the sensory qualities of fresh food as possible, e.g. flavour/colour/appearance/texture; to retain nutritive value;	5
5(b)	HTST/flash method/Holder method;	1

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Question	Answer	Marks
5(c)	milk is homogenised; heated to 80 °C/176 °F for 15 minutes; sugar added; some water removed/evaporated; cooled and sealed in cans/canned;	3
5(d)	keep in a cool place/refrigerate because bacteria reproduce more slowly/inhibit growth of bacteria; store in clean containers so that residual bacteria in container cannot contaminate milk; do not mix old and new milk if older milk is beginning to sour because this will affect new milk; cover to prevent entry of dust/insects; do not store near strong-smelling foods because milk absorbs the smell, e.g. cheese, onions; store in a dark place/away from sunlight because riboflavin destroyed by exposure to sunlight; use within two or three days so that souring does not begin; freeze the milk as the bacteria become dormant; do not freeze milk in glass bottles as the liquid will expand and may crack the bottle;	4

Question	Answer	Marks
6(a)	rubbed in/rubbing in;	1
6(b)	heat energy is transferred by the movement of the air/liquid/gas; when air/liquid/gas heated it becomes less dense and rises; hot air/liquid/gas displaces cold air/liquid/gas which sinks and is heated again; convection currents formed; continues until a constant temperature is reached;	3

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Question	Answer	Marks
6(c)	fat in cheese melts; protein coagulates; overcooking makes cheese tough/stringy/rubbery/hard to digest;	2
6(d)	formation of crisp crust/crunchy; starch breaks down into dextrin/dextrinisation occurs; food turns (golden) brown;	2

Question	Answer	Marks
7(a)	sieving – flour for shortcrust pastry/scones; creaming – fat and sugar for rich cakes; rubbing in – dish made with shortcrust pastry; whisking eggs and sugar – Swiss roll/sponge cake/sponge drops; beating – eggs before adding to creamed mixture; rolling and folding – dish made with flaky pastry/puff pastry;	4
7(b)	Yorkshire puddings; toad-in-the-hole; éclairs; choux buns; profiteroles;	1
7(c)	warmth; moisture; food;	2
7(d)	carbon dioxide;	1

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Question	Answer	Marks
7(e)(i)	yeast will be killed/destroyed;	1
7(e)(ii)	yeast will become dormant;	1
7(f)	strong/hard flour has high gluten content; spring wheat/Canadian flour contains more than 10% protein which allows the dough to stretch; plain flour because yeast is the raising agent; wholemeal flour adds colour/"nutty" flavour/B vitamins/NSP;	2

Question	Answer	Marks
8(a)	appropriate reason required for the mark to be awarded in each case	4
	walls/floors/ceilings must be in good condition/easy to clean/cleaned regularly – reason; work surfaces smooth/no cracks/non-absorbent material/easy to clean – reason; clean work surfaces/equipment regularly – reason; food storage areas easy to clean/cleaned regularly – reason; temperature of fridge/freezer monitored – reason; clean chopping boards/knives/other equipment/hands after use with raw food – reason; keep pets/pests away from food preparation areas; dispose of rubbish in covered bins/empty bins regularly/disinfect bins regularly – reason; use different colour chopping boards/knives/change chopping boards for different food – reason; clean tea towel/dish cloth regularly and do not use it for other purposes – reason; do not use chipped/damaged equipment – reason; appropriate reasons, e.g.: to prevent cross-contamination/transfer of bacteria to prevent growth of microorganisms to avoid attracting pests	

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Question	Answer	Marks
8(b)	appropriate reason required for the mark to be awarded in each case	4
	hard-wearing/durable – reason; needs to be easy to clean – reason; heat resistant – reason; non-absorbent to grease and liquid – reason; stain resistant – reason; not hazardous for slipping/falls/tripping/will not crack or scratch; not too cold/warm to feet – reason; not too hard for comfort – reason; no loose mats/highly polished finish – reason; colour/aesthetic appeal to complement/coordinate with decoration/please the consumer; light colour to give kitchen brightness/keep kitchen cool; cost to fit with budget; vinyl tiles/sheet/thermoplastic/linoleum because it is comfortable/warm/resistant to moisture/traffic;	
	ceramic tiles can be cold/resistant to stains/hard underfoot/need regrouting/durable; wood floor/laminate engineered because it is warm/durable/easy to clean/cheaper; cork because it is a renewable and sustainable source/warm/soft/soundproof/insulating/can be sealed; rubber because it is warm/soft/insulates/resists water/resists burns/it is slip resistant/hard wearing; quarry tiles/stone/slate/travertine because it is porous so stains easily unless sealed/expensive/hard on feet/crockery may break if dropped onto the tiles; carpet/carpet tiles because it is hard to clean/not stain resistant/hard-wearing;	

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Question	Answer	Marks
8(c)	must suit cooking stove so that the pan works on the stove (gas/electric/solid fuel/open) where it will be used; size of pan should suit size of hob/burners available to prevent waste of fuel or handles heating/damaged/using too much fuel to heat a big pan on small flame; choose a variety of sizes/types because this will suit cooking different quantities/for different sizes of family; thick base so will not buckle with heat; flat/ground base for use with solid fuel or electric stove to give good contact with solid hotplate/prevent waste of heat/stable to prevent tipping over; handle comfortable/firmly attached/plastic/wooden as poor conductors of heat; non-stick surface is easy to clean but need non-metal utensils/good for healthy cooking as no need for oil or fat; rounded corners between base and sides prevents food collecting easier to stir/easier to clean; cost to keep to budget; well-fitting lid saves fuel/prevents evaporation of water; colour to match with kitchen design; brand/quality to buy from a reliable supplier/recommended; weight of pan so not too heavy with total weight of food being cooked; aluminium is lightweight but dents if dropped/can buckle with strong heat; copper/copper base because it conducts heat well, expensive; not copper pan to prevent loss of vitamin C; stainless steel is good conductor of heat/hard-wearing/keeps shape; enamel is colourful which may match/brighten kitchen but chips if dropped; glass is easy to clean/can see contents; iron is cheap but stains/rusts;	4

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Question	Answer	Marks
9(a)	need to have a balanced diet – maintenance of the mother's body weight and the growing fetus; sufficient HBV protein – growth of fetus; increase calcium and/or phosphorus – building bones/teeth/skeleton growth of fetus/prevents weakened bones (osteoporosis or osteomalacia) in mother; increase vitamin D – absorbs calcium/prevent low birth weight/tetany/oesteomalacia in mother; increase iron – mother's blood volume increased in pregnancy/prevents anaemia in mother/fetus needs six month store of iron due to lack of iron in milk; increase vitamin C – to absorb iron/boost immune system; NSP – prevent constipation; essential fatty acids (EFAs)/linollec/linolenic/omega 6/omega 3 – brain development of fetus/lower blood cholesterol of mother; increase folate/folic acid for nervous system/reduces the risk of miscarriage/prevent neural tube defects/spina bifida/premature birth/for development of brain/RNA/DNA production; vitamin B – release energy from carbohydrates/fats/protein; more starchy food due to higher energy needs (1000 kJ/250 kcal); reduced fat – difficult to digest– baby too big – mother overweight/CHD; reduced sugar – less active so less energy used/diabetes/obesity; reduce salt intake levels – increase risk of high blood pressure/hypertension/fluid retention/risk for the fetus; avoid unpasteurised cheese/pāte/ready-prepared salads which may contain listeria causing still-birth or miscarriage; avoid raw or partially cooked eggs/mayonnaise/mousse due to risk of salmonella; avoid alcohol/caffeine/nicotine – prevents calcium being laid down correctly; avoid liver in first few months pregnancy due to high concentration vitamin A which could affect development of the fetus; avoid shark/swordfish/tuna/marlin due to high levels of mercury; avoid nuts/allergy concerns;	15
9(b)	steaming advantages [max 4] little attention required except to top up water/some have timers/do not have to flip or turn; easy to digest/light texture so suitable for convalescents/elderly/young children; food not in contact with water so no loss of water-soluble vitamins; food not likely to overcook/does not fall apart/breakup;	15

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Question	Answer	Marks
	saves fuel/can cook several dishes in different tiers; uses only one burner on stove; can be carried out in pressure cooker so saves time;	
	healthy method as no fat is used; because it is long slow method can be used to tenderise food so good for inexpensive meat/cheaper cuts;	
	disadvantages [max 4] food takes a long time to cook; can be an expensive use of fuel; heat destruction of vitamin C more likely to occur;	
	kitchen likely to be filled with moisture/uncomfortable to work in/deterioration of decoration; food does not develop colour/does not look attractive; food can be insipid/tasteless so needs to be served with a sauce; food remains soft/not crisp/variety of texture/lacks "bite"/needs additional accompaniment to vary texture;	
	frying advantages [max 4] quick method of cooking/good when time is limited; saves fuel;	
	food becomes brown/looks appetising/looks attractive; develops crisp surface/appealing/variety of textures; flavour developed/if coatings are used absorbs flavour from oil/fat; appetising smell/increases flow of saliva for easy digestion; high satiety value;	
	disadvantages [max 4] adds fat/increases calorific value of product which can lead to obesity/CHD; needs constant attention during cooking; fried food may be difficult to digest/not suitable for convalescents;	
	can be a dangerous process/needs skill; can be expensive to buy enough oil for a deep-fat-fryer; cannot cook large amounts at once; if the fat is too hot food will be overcooked on the outside and raw inside;	
	if the fat is too cool food will absorb oil/become soggy/unappetising;	

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Question	Answer	Marks
	must strain oil when cool to remove crumbs of food which can decompose and give a bitter flavour/leave dark specks on food; some foods need to be coated to prevent them falling apart/absorbing too much fat;	