



FOOD AND NUTRITION

0648/13

Paper 1 Theory

May/June 2017

MARK SCHEME

Maximum Mark: 100

Published

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 May/June 2017 series for most Cambridge IGCSE[®], Cambridge International A and AS Level and Cambridge Pre-U components, and some Cambridge O Level components.

Question	Answer	Marks
1(a)	<p><i>elements which make up fats and oils</i></p> <p>carbon hydrogen oxygen;</p>	1
1(b)	<p><i>facts about monounsaturated fats</i></p> <p>molecule can accept more hydrogen; molecule has <u>one</u> double (carbon-carbon) bond; liquid (at room temperature); plant origin;</p> <p><u>more</u> reactive;</p>	2
1(c)	<p><i>sources of polyunsaturated fats</i></p> <p>sesame (seed) oil; sunflower (seed) oil; maize oil; corn oil; flax oil; rape seed oil / canola; palm oil; oily fish (or named e.g.); fish liver oil (or named e.g.); soya bean oil; safflower oil; nut oil (or named e.g.) nuts;</p>	2
1(d)(i)	<p><i>Type of enzyme involved in the breakdown of fat in the digestive system</i></p> <p><u>lipase</u>;</p>	1
1(d)(ii)	<p><i>end products of fat digestion</i></p> <p>glycerol and fatty acids;</p>	1

Question	Answer	Marks
1(e)	<p><i>ways saturated fat intake could be reduced in meals</i></p> <p>eat red meat only occasionally / eat smaller portions; trim off visible fat from meat; eat fish in place of meat high in saturated fat; use vegetable oils such as sunflower / olive oil instead of saturated fats such as butter; flavour foods with herbs / spices instead of saturated fat rich toppings and sauces; read labels carefully to check saturated fat content; reduce consumption of ready made /processed meals due to high saturated fat content / increase consumption of home-made meals; use lower fat versions e.g. semi-skimmed milk, skimmed milk, yoghurt over cream or use less of the full fat products; use meats low in fat, e.g. chicken; remove skin from poultry; use lean cuts of meat; use less fat in cooking; grill / bake / steam / boil foods instead of frying / roasting;</p>	5
1(f)	<p><i>name of deterioration process of fats and oils</i></p> <p><u>rancidity</u>;</p>	1

Question	Answer	Marks
2(a)	<p><i>nutrient formed from amino acids</i></p> <p><u>protein</u>;</p>	1
2(b)	<p><i>sources of protein suitable for a lacto-vegetarian</i></p> <p>milk; cheese; eggs; Quorn; beans; peas; cereals / named cereal; nuts; pulses; soya; yoghurt;</p>	3

Question	Answer	Marks
3(a)	<i>another name for vitamin A</i> retinol / beta-carotene;	1
3(b)	<i>plant sources of vitamin A</i> green leafy vegetables (or one named e.g. spinach / watercress / parsley / cabbage); papaya; carrot; apricots; pumpkin; squash; tomatoes; orange; margarine;	3
3(c)	<i>effect on the body of a deficiency of vitamin A</i> night blindness / xerophthalmia; bone development in children; poor growth in children; dry skin; mucous membranes; chest infections	1

Question	Answer	Marks
4(a)	<i>sources of vitamin D</i> oily fish (or named e.g.); fish liver oil (or named e.g.); butter; eggs; sunshine; margarine; (fortified) breakfast cereals; milk; cheese; yoghurt; red meat (or named e.g.); liver;	3
4(b)	<i>effect on children due to deficiency of vitamin D</i> <u>rickets</u> ;	1
4(c)	<i>effect on adults due to deficiency of vitamin D</i> osteoporosis; osteomalacia;	1

Question	Answer	Marks
5(a)	<p><i>Symptom of scurvy</i></p> <p>fatigue / pain in limbs / red-blue spots on skin / swollen or bleeding gums</p>	1
5(b)	<p><i>functions of vitamin C</i></p> <p>to make connective tissue / formation of collagen; heals wounds / fractures; absorption of iron; antioxidant; helps to build strong bones and teeth; production of blood / walls of blood vessels; build / maintain healthy skin; healthy gums; support the immune system / helps prevent illnesses; resistance to infection / helps prevention of infection; building / maintenance of linings of digestive system;</p>	3

Question	Answer	Marks
6(a)	<p><i>plant sources of iron</i></p> <p>cocoa / plain chocolate; curry powder; black treacle; dried fruit (or named e.g.); pulses / soya beans / beans / peas; green vegetables (or named e.g.);</p>	2
6(b)	<p><i>animal sources of iron</i></p> <p>liver; kidney; red meat (or named e.g.); corned beef; eggs;</p>	2

Question	Answer	Marks
7	<p><i>reasons for the use of additives in convenience foods</i></p> <p>colours to make the food look attractive; extend the shelf life / stop the growth of bacteria; sweeteners to enhance sweetness / replace sugar to make food 'low sugar'; to improve the consistency / texture to improve the appearance; to emulsify; flavourings / flavour enhancers to improve taste by adding / restoring; antioxidants to prevent rancidity/slow down enzyme activity in fruit / veg; nutrient replacement/fortification to replace/enhance loss in processing;</p>	5

Question	Answer	Marks
8(a)(i)	<p><i>gas produced when bicarbonate of soda is used to make gingerbread</i></p> <p>carbon dioxide;</p>	1
8(a)(ii)	<p><i>reasons why spices are used when making gingerbread</i></p> <p>flavour; aroma; to mask flavour of washing soda;</p>	2
8(b)	<p><i>List three methods of introducing air into a mixture</i></p> <p>sieving; creaming; whisking; rolling and folding; rubbing in; beating;</p>	3

Question	Answer	Marks
8(c)(i)	<i>raising agent used in a bread roll</i> yeast	1
8(c)(ii)	<i>raising agent in a sausage roll made with flaky pastry</i> air / steam	1
8(c)(iii)	<i>raising agent used in a Yorkshire pudding</i> steam / air	1
8(c)(iv)	<i>raising agent used in scones</i> baking powder;	1

Question	Answer	Marks
9(a)	<i>List the steps used to make the scone dough</i> sieve flour and salt; rub butter into flour; with fingertips; till fine breadcrumbs; add sugar; stir in milk; to make a soft not sticky dough; knead mixture gently;	5
9(b)	<i>functions of the butter in the recipe</i> adds colour; adds flavour / taste / enriches; holds air bubbles / holds air / traps air when rubbing in; extends shelf life; increases moisture / prevents drying out; shortens flour mixture / improves mouth feel / crumbly texture	3

Question	Answer	Marks
9(c)	<p><i>ways the recipe could be adapted to provide a savoury scone</i></p> <p>cheese; herbs; any meat e.g. salami / ham; nuts; olives; sun dried tomatoes; courgettes;</p>	2
9(d)	<p><i>ingredients which could be added to make recipe suitable for a person who suffers from constipation</i></p> <p>add sultanas / raisins / currants / cherries / any other dried fruit; add any suitable fresh fruit; add any suitable fresh vegetable; use wholemeal flour; use nuts; add bran / oat bran;</p>	3
9(e)(i)	<p><i>the scones are doughy in the middle</i></p> <p>not cooked long enough; oven too hot; too much liquid; scones cut too big; oven too cool;</p>	2
9(e)(ii)	<p><i>the scones are too thin</i></p> <p>rolled too thinly; no raising agent / plain flour / not enough self-raising flour used; wholemeal flour used; too much handling;</p>	2

Question	Answer	Marks
9(f)	<p><i>benefits of plastic as a packaging material</i></p> <p>lightweight; recyclable; can be printed on so no label needed; can be used in microwave; cheap; can be used in freezer / resistant to low temperatures; see through / can see contents; mouldable / flexible; can be coloured; resistant to moisture / impermeable; can be fused to seal / airtight; strong / durability;</p>	4
9(g)(i)	<p><i>microwave symbol</i></p> <p>shows food is microwaveable; can avoid product if microwave not available; may indicate cooking time / power level;</p>	1
9(g)(ii)	<p><i>freeze on day of purchase</i></p> <p>allows consumer to see that they can use (the scone) at a later date if frozen on day of purchase; so helps consumers plan ahead / bulk buy / take advantage of offers / save money; reduce food spoilage;</p>	1

Question	Answer	Marks
9(g)(iii)	<i>this product contains wheat</i> coeliac disease warning / gluten intolerance; coeliacs know to avoid this product;	1
9(g)(iv)	<i>Möbius loop</i> indicates that the wrapping is capable of being recycled; sometimes used to indicate that the packaging is a product of recycling;	1

Question	Answer	Marks
10(a)	<p><i>reasons why preserved foods are useful in the home</i></p> <p>to provide food when supply is limited; to enjoy food out of season; to give variety / different flavours / textures / make new products like jam / pickles; to cope with a glut; prevents waste / food spoilage / decay / to extend shelf life; to enjoy produce of other countries; to save money when quality is best and cost is lowest; to use in emergencies / famine / war; to prevent the re-entry of microorganisms by sealing well; easy / quick to prepare;</p>	6
10(b)(i)	<p><i>example of preserving in the home by the use of high temperature</i></p> <p>jam making; bottling; canning;</p>	1
10(b)(ii)	<p><i>example of preserving in the home by the use of an acid</i></p> <p>pickling; chutney making;</p>	1
10(c)	<p><i>importance of blanching vegetables before they are frozen</i></p> <p>blanching stops action of enzymes / spoilage / decay of veg will be halted; colour retained; flavour retained; texture retained; nutritive value retained;</p>	2

Question	Answer	Marks
11(a)	<p><i>Discuss factors other than nutrition which need to be considered when preparing and serving meals for a toddler.</i></p> <p>eat meals with rest of family as eating is a sociable occasion / they learn from others and enjoy interaction; cut / mash food if necessary to encourage independence / children may be put off by too much chewing / makes the food easier to eat and digest; no bones; serve small portions which encourages child to eat everything / not daunting; have regular mealtimes; do not use food as a reward or punishment; serve food attractively; variety of colours; variety of flavours; variety of textures; avoid highly flavoured / spicy foods; serve water / non added sugar squash / diluted juice / smoothies with meal to prevent dental caries / sweet tooth; introduce new foods / wide variety of foods to reduce the chances of them becoming fussy eaters; avoid lots of greasy / fried food; avoid overfeeding to prevent risk of obesity in later life; make meal times fun positive experiences to help encourage children to eat healthily long and short term; take time to enjoy the food as children can take a long time at meal times as well as getting used to new foods; child could learn bad behaviour / negative associations if mealtimes are stressful or rushed which could discourage trying new things or eating in general / no force feeding; food must not be too hot or child may burn their mouth; do not give too many snacks children have smaller appetites and might fill up on snack rather than main meals; do not give foods containing nuts to children if a family member has a diagnosed allergy; ensure eggs are well cooked to prevent risk of salmonella food poisoning; use additive free food; avoid giving foods with high salt content; avoid foods with high sugar content; serve some finger food which is easy to manage / eat as they may not be good with cutlery; serve food on child's own special plate / cup / unbreakable crockery and utensils; involve child in food preparation;</p>	15

Question	Answer	Marks
11(b)	<p><i>Compare and contrast the advantages and disadvantages of frying and steaming as methods of cooking.</i></p> <p>frying is a dry method AND steaming is a moist method; frying quick method of cooking AND steaming slow method; frying saves fuel AND economical use of fuel for steam; frying food becomes brown / appealing colour AND steaming pale, insipid colour; frying food has crisp surface AND steaming soft texture, lacks bite; frying flavour developed AND steaming flavour not developed; frying food has appetising smell AND steaming little aroma developed; frying adds calories without adding bulk AND steaming doesn't; frying high satiety value AND steaming less filling; frying if foods are coated juices are sealed in / prevents absorption of fat; frying coating holds fragile foods in shape / prevents breaking up AND steaming food may break apart; frying adds fat / increases calorific value to product AND steaming doesn't; frying can lead to obesity / CHD AND steaming doesn't; frying needs constant attention during cooking AND steaming needs little attention; fried food may be difficult to digest AND steamed food is easy to digest; frying can be a dangerous process AND steaming is safer; frying needs skill / smoking point of oil considered / ignites easily; frying can be expensive to buy enough oil for deep fat pan; frying is more versatile, e.g. stir, deep fat, shallow; frying cannot cook large amounts at once AND steaming can / use of tiered steamer; frying if fat too hot food will be overcooked on outside and raw inside; frying if fat too cool food will absorb oil / become soggy / unappetising; frying must strain oil when cool to remove crumbs of food which can decompose and give a bitter flavour or leave dark specks on food;</p> <p>steaming little or no loss of nutrients; steaming can use a pressure cooker / electric steamer which increases boiling temperature of water so food cooks quicker; steaming may need garnishing / decorating to look attractive; steaming kitchen may be hot / causes condensation; steaming boiling water needs to be available to ensure a constant supply of steam;</p>	15