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**FOOD AND NUTRITION**

**0648/13**

Paper 1 Theory

**May/June 2017**

MARK SCHEME

Maximum Mark: 100

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**Published**

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This document consists of **13** printed pages.

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

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

| Question | Answer   | Marks    |
|----------|--|----------|
| 2(a)     | <p><i>nutrient formed from amino acids</i></p> <p><u>protein</u>;</p>  | <b>1</b> |
| 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> | <b>3</b> |

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

| Question | Answer  | Marks    |
|----------|---|----------|
| 4(a)     | <i>sources of vitamin D</i><br>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; | <b>3</b> |
| 4(b)     | <i>effect on children due to deficiency of vitamin D</i><br><u>rickets</u> ;  | <b>1</b> |
| 4(c)     | <i>effect on adults due to deficiency of vitamin D</i><br>osteoporosis; osteomalacia;   | <b>1</b> |

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

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

| 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;<br/>           extend the shelf life / stop the growth of bacteria;<br/>           sweeteners to enhance sweetness / replace sugar to make food 'low sugar';<br/>           to improve the consistency / texture<br/>           to improve the appearance;<br/>           to emulsify;<br/>           flavourings / flavour enhancers to improve taste by adding / restoring;<br/>           antioxidants to prevent rancidity/slow down enzyme activity in fruit / veg;<br/>           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;<br/>           aroma;<br/>           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;<br/>           creaming;<br/>           whisking;<br/>           rolling and folding;<br/>           rubbing in;<br/>           beating;</p> | 3     |

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

| Question | Answer   | Marks |
|----------|--|-------|
| 9(a)     | <i>List the steps used to make the scone dough</i><br>sieve flour and salt;<br>rub butter into flour; with fingertips; till fine breadcrumbs;<br>add sugar;<br>stir in milk; to make a soft not sticky dough;<br>knead mixture gently;   | 5     |
| 9(b)     | <i>functions of the butter in the recipe</i><br>adds colour;<br>adds flavour / taste / enriches;<br>holds air bubbles / holds air / traps air when rubbing in;<br>extends shelf life;<br>increases moisture / prevents drying out;<br>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;<br/>herbs;<br/>any meat e.g. salami / ham;<br/>nuts; olives; sun dried tomatoes; courgettes;</p>  | <b>2</b> |
| 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;<br/>add any suitable fresh fruit;<br/>add any suitable fresh vegetable;<br/>use wholemeal flour;<br/>use nuts;<br/>add bran / oat bran;</p> | <b>3</b> |
| 9(e)(i)  | <p><i>the scones are doughy in the middle</i></p> <p>not cooked long enough;<br/>oven too hot;<br/>too much liquid;<br/>scones cut too big;<br/>oven too cool;</p>   | <b>2</b> |
| 9(e)(ii) | <p><i>the scones are too thin</i></p> <p>rolled too thinly;<br/>no raising agent / plain flour / not enough self-raising flour used;<br/>wholemeal flour used;<br/>too much handling;</p>  | <b>2</b> |



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

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

| 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;<br/> to enjoy food out of season;<br/> to give variety / different flavours / textures / make new products like jam / pickles;<br/> to cope with a glut;<br/> prevents waste / food spoilage / decay / to extend shelf life;<br/> to enjoy produce of other countries;<br/> to save money when quality is best and cost is lowest;<br/> to use in emergencies / famine / war;<br/> to prevent the re-entry of microorganisms by sealing well;<br/> easy / quick to prepare;</p> | <b>6</b> |
| 10(b)(i)  | <p><i>example of preserving in the home by the use of high temperature</i></p> <p>jam making;<br/> bottling;<br/> canning;</p>  | <b>1</b> |
| 10(b)(ii) | <p><i>example of preserving in the home by the use of an acid</i></p> <p>pickling;<br/> chutney making;</p>   | <b>1</b> |
| 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;<br/> colour retained;<br/> flavour retained;<br/> texture retained;<br/> nutritive value retained;</p>   | <b>2</b> |

| 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;<br/> 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;<br/> no bones;<br/> serve small portions which encourages child to eat everything / not daunting;<br/> have regular mealtimes;<br/> do not use food as a reward or punishment;<br/> serve food attractively;<br/> variety of colours;<br/> variety of flavours;<br/> variety of textures;<br/> avoid highly flavoured / spicy foods;<br/> serve water / non added sugar squash / diluted juice / smoothies with meal to prevent dental caries / sweet tooth;<br/> introduce new foods / wide variety of foods to reduce the chances of them becoming fussy eaters;<br/> avoid lots of greasy / fried food;<br/> avoid overfeeding to prevent risk of obesity in later life;<br/> make meal times fun positive experiences to help encourage children to eat healthily long and short term;<br/> take time to enjoy the food as children can take a long time at meal times as well as getting used to new foods;<br/> 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;<br/> food must not be too hot or child may burn their mouth;<br/> do not give too many snacks children have smaller appetites and might fill up on snack rather than main meals;<br/> do not give foods containing nuts to children if a family member has a diagnosed allergy;<br/> ensure eggs are well cooked to prevent risk of salmonella food poisoning;<br/> use additive free food;<br/> avoid giving foods with high salt content;<br/> avoid foods with high sugar content;<br/> serve some finger food which is easy to manage / eat as they may not be good with cutlery;<br/> serve food on child's own special plate / cup / unbreakable crockery and utensils;<br/> 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;<br/> frying quick method of cooking AND steaming slow method;<br/> frying saves fuel AND economical use of fuel for steam;<br/> frying food becomes brown / appealing colour AND steaming pale, insipid colour;<br/> frying food has crisp surface AND steaming soft texture, lacks bite;<br/> frying flavour developed AND steaming flavour not developed;<br/> frying food has appetising smell AND steaming little aroma developed;<br/> frying adds calories without adding bulk AND steaming doesn't;<br/> frying high satiety value AND steaming less filling;<br/> frying if foods are coated juices are sealed in / prevents absorption of fat;<br/> frying coating holds fragile foods in shape / prevents breaking up AND steaming food may break apart;<br/> frying adds fat / increases calorific value to product AND steaming doesn't;<br/> frying can lead to obesity / CHD AND steaming doesn't;<br/> frying needs constant attention during cooking AND steaming needs little attention;<br/> fried food may be difficult to digest AND steamed food is easy to digest;<br/> frying can be a dangerous process AND steaming is safer;<br/> frying needs skill / smoking point of oil considered / ignites easily;<br/> frying can be expensive to buy enough oil for deep fat pan;<br/> frying is more versatile, e.g. stir, deep fat, shallow;<br/> frying cannot cook large amounts at once AND steaming can / use of tiered steamer;<br/> frying if fat too hot food will be overcooked on outside and raw inside;<br/> frying if fat too cool food will absorb oil / become soggy / unappetising;<br/> 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;<br/> steaming can use a pressure cooker / electric steamer which increases boiling temperature of water so food cooks quicker;<br/> steaming may need garnishing / decorating to look attractive;<br/> steaming kitchen may be hot / causes condensation;<br/> steaming boiling water needs to be available to ensure a constant supply of steam;</p> | <b>15</b> |