



**Cambridge Assessment International Education**  
Cambridge International General Certificate of Secondary Education

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**FOOD AND NUTRITION**

**0648/11**

Paper 1 Theory

**October/November 2018**

MARK SCHEME

Maximum Mark: 100

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**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 International will not enter into discussions about these mark schemes.

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This document consists of **14** printed pages.

**PUBLISHED****Generic Marking Principles**

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptors for a question. Each question paper and mark scheme will also comply with these marking principles.

**GENERIC MARKING PRINCIPLE 1:**

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptors for the question
- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

**GENERIC MARKING PRINCIPLE 2:**

Marks awarded are always **whole marks** (not half marks, or other fractions).

**GENERIC MARKING PRINCIPLE 3:**

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
- marks are not deducted for errors
- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

**GENERIC MARKING PRINCIPLE 4:**

Rules must be applied consistently e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

**GENERIC MARKING PRINCIPLE 5:**

Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).

**GENERIC MARKING PRINCIPLE 6:**

Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

Question	Answer	Marks
1(a)	<b>elements from which carbohydrates are formed</b> carbon; hydrogen; oxygen;	2
1(b)	<b>examples of disaccharides</b> sucrose; lactose; maltose;	2
1(c)	<b>health benefits of reducing consumption of sugar</b> reduced risk of dental caries / tooth decay; reduced risk of (type 2) diabetes; reduced risk of obesity / CHD / high blood pressure / stroke;	2
1(d)	<b>nutrient which provides the body with energy</b> fat / protein;	1
1(e)	<b>unit used to measure energy</b> (kilo)calories / (kilo)joules;	1
1(f)(i)	<b>example of mechanical energy</b> any physical activity, e.g. running, jumping, walking, working, chewing.	1
1(f)(ii)	<b>example of chemical energy</b> anything metabolic, e.g. growth / repair / digestion / absorption / changing body temperature;	1
1(f)(iii)	<b>example of electrical energy</b> anything nervous, e.g. using senses, impulses, fight and flight, brain activity, thinking, internal mechanism for maintaining heat, concentration, heartbeat;	1
1(g)	<b>definition of metabolism</b> the chemical process in the body to maintain life / use of food for (growth, repair and) energy;	1

Question	Answer	Marks
1(h)	<b>health issues which can occur as a result of a low energy input</b> loss of weight / underweight; risk of becoming anorexic; low self-esteem; reduction in energy levels / increased tiredness / difficult to concentrate; risk of stopping or reducing milk production if lactating; risk of low weight baby if pregnant; muscle wastage; periods stop / dysmenorrhea; poor production of heat energy / feeling cold;	3
1(i)	<b>enzyme which acts on starch in the mouth</b> amylase / ptyalin;	1
1(j)	<b>effect of dry heat on starch</b> starch changes to <u>dextrin</u> / <u>dextrinisation</u> ; <u>colour</u> of food surface changes to (golden) brown;	2
1(k)	<b>term used to describe the swelling and bursting of starch granules when moist heat is used</b> <u>gelatinisation</u> ;	1

Question	Answer	Marks
2(a)	<b>function of fluoride</b> strengthens bones / teeth; protects teeth against dental decay;	1
2(b)	<b>functions of phosphorus</b> structure and maintenance of bones and teeth; production of energy from carbohydrates and fats; maintains fluid balance in the body;	2

Question	Answer	Marks
2(c)	<b>how sodium and potassium work together in the body</b> transmission of nerve impulses / muscle contraction / muscle maintenance; regulates water / fluid and electrolyte balance; potassium helps counter the effects of sodium as it helps lower blood pressure;	2

Question	Answer	Marks
3(a)	<b>where fat soluble vitamins are stored in the body</b> <u>liver</u> ;	1
3(b)(i)	<b>sources of retinol</b> milk; cheese; butter; liver; kidney; eggs; fish liver oil (or one named, e.g. cod); oily fish (or one named, e.g. salmon, mackerel, sardine);	2
3(b)(ii)	<b>sources of beta-carotene</b> green leafy vegetables (or one named, e.g. lettuce, broccoli, cabbage, sprouts, kale); papaya; carrot; apricot; pumpkin / squash; tomato; orange; margarine; sour cherries; persimmon; red / orange / yellow pepper; cantaloupe melon; sweet potato;	2

Question	Answer	Marks
3(c)	<b>deficiency disease associated with a lack of vitamin A</b> night-blindness / xerophthalmia;	<b>1</b>
3(d)	<b>functions of vitamin E (tocopherol) in the body</b> healthy skin; antioxidant; destroys free radicals; helps to prevent heart disease; formation of new blood vessels around damaged areas; maintenance of cell membranes / cellular respiration; functioning of sex organs / reproduction / fertility; reduces risk of developing certain cancers;	<b>2</b>
3(e)	<b>functions of vitamin K in the body</b> clotting of blood; normal liver functioning; aids the absorption of calcium in bone structure; important in maintaining vitality and longevity; protects against osteoporosis;	<b>2</b>

Question	Answer	Marks
4	<p><b>explain why water is vital in the diet</b>            water continually being lost so needs replacing / maintain water balance;            prevents dehydration / hydrates the body / reduces fatigue / decrease risk of migraines / headaches;            required for all body fluids: digestive juices / mucus / plasma / saliva / blood / sweat / urine / cytoplasm;            regulates body temperature through perspiration;            makes food easier to eat, swallow / helps digestion;            metabolic reactions / cellular respiration;            absorption of nutrients (especially vitamins B and C) / transports nutrients;            helps removal of waste products such as urine, faeces, toxins / reduced risk of kidney problems;            improves concentration / brain function;            (combines with NSP to) soften faeces / reduce risk of bowel disorders / constipation / diverticular disease;            lubricates muscles and joints;            less risk of high blood pressure;            keep linings of mucus membranes / digestive tract / bronchial tubes moist;            needed during lactation for milk production;</p>	6

Question	Answer	Marks
5(a)	<p><b>method used to make the flapjack</b>  <u>melting</u>;</p>	1
5(b)	<p><b>ingredients to lower the saturated fat</b>            margarine;            olive oil;            sunflower oil;            rapeseed oil;            corn oil;  <u>named</u> seed oil (e.g. sesame oil);  <u>named</u> nut oil (e.g. walnut);</p>	2
5(c)	<p><b>ingredient high in NSP</b>  <u>oats</u></p>	1



Question	Answer	Marks
5(d)	<b>ingredients which could be added to vary the flavour of the flapjack</b> citrus zest; coconut; fresh fruit or named example, e.g. apple / blueberries / raspberries; dried fruit or named example, e.g. apricot / sultana / currant / raisin / dates / figs / banana chips; glacé cherries; nuts or named example; <u>named</u> essence; seeds or named example; <u>named</u> spice; chocolate chips / powder / cocoa; black treacle / blackstrap molasses;	3
5(e)	<b>methods of preparing the baking tin to prevent the flapjack sticking</b> grease / oil / butter; grease and flour; baking parchment; grease and greaseproof paper; grease and foil;	2
5(f)	<b>explain the term conduction</b> heat energy transferred through <u>solids</u> such as oven shelf / tin; vibration of adjacent molecules generates heat which passes through mixture;	2

Question	Answer	Marks
6(a)	<b>other main ingredient of baking powder</b> <u>cream of tartar</u> ;	1
6(b)	<b>effect of using only bicarbonate of soda in a mixture</b> leaves brown / yellowish residue in the flour; gives a bitter / soapy taste to the food;	1
6(c)	<b>gas produced when bicarbonate of soda is used as a raising agent</b> <u>carbon dioxide / CO<sub>2</sub></u> ;	1

Question	Answer	Marks
6(d)	<p><b>how to store baking powder in the home</b>  cool place such as a cupboard;  keep away from moisture;  in an airtight container;  keep the lid closed;</p>	2
6(e)	<p><b>reasons for using raising agents in baked products</b>  makes mixture rise;  makes mixtures light;  gives an open texture / spongy;  makes product easier to digest;  produces a more attractive product;</p>	3
7(a)	<p><b>dishes which can be made from batters</b>  pancakes;  fritters;  toad-in-the-hole;  Yorkshire pudding;  as a coating, e.g. battered fish;</p>	3
7(b)	<p><b>how to make a traditional batter mixture</b>  sieve flour;  use wooden spoon;  make hole / well in centre of flour;  add egg and half milk;  stir in flour gradually;  beat in rest of milk slowly;  beat until smooth / no lumps;</p>	4

Question	Answer	Marks
7(c)	<b>labour-saving kitchen equipment with different example of the use of each</b> stick / blender / liquidiser; e.g. fruit purée, soup, baby food, breadcrumbs; free-standing mixer; e.g. creaming, shortcrust pastry, whisking, dough; food processor; e.g. creaming, shortcrust pastry, yeast dough; grinder; e.g. spices, chopping herbs; electric knife; e.g. slicing bread, meat; bread maker; e.g. making bread; (electric) juicer; e.g. juicing;	6
7(d)	<b>safety rules that should be followed when using electrical equipment</b> hair tied back; no loose clothing; wash all sharp attachments carefully; do not immerse motor block in water; keep hands well away from beaters and blades when using / washing up; correct wiring / no exposed wires / flex not frayed; no trailing flexes / don't dangle over open flames / across floors; sockets should not be broken / no screws missing / do not overload; don't touch with wet hands / keep away from water; switch off before removing plug / blades / beaters;	5
7(d)	make sure you know how to use it / read instructions first;	

Question	Answer	Marks
8(a)	<b>first-aid treatment for someone who has fainted</b> raise their legs (to help blood flow back to the brain); make sure that they have plenty of fresh air; loosen restrictive clothing; reassure the casualty and help them to sit up slowly; if they are unresponsive, open their airway by tilting their head back and lifting their chin, check their breathing; put them into the recovery position; call for an ambulance and stay with them until medical help arrives; give them drink / water / sugary drink;	3

Question	Answer	Marks
8(b)	<b>reasons to have a well-ventilated kitchen</b> makes working more pleasant / provide a comfortable, cool environment; remove / extract excess hot air; removes / extract fumes / cooking odours; removes / extract smoke; removes / extract excess / airborne grease; remove / extract steam / prevent condensation forming; introduce incoming cool, clean air; provide sufficient air for complete combustion at fired appliances; prevent the risk of carbon monoxide accumulating; prevent growth of bacteria, mould and fungi;	<b>5</b>

Question	Answer	Marks
9(a)	<p><b>‘Convenience foods are a popular choice for use by today's busy households’. Discuss this statement.</b></p> <p><b>dehydration (max 4)</b>  water removed so bacteria cannot multiply without water;  food becomes sweeter / more salty / more concentrated / smaller in size;  some vitamin C / vitamin B<sub>1</sub> (thiamine) / water soluble vitamins may be lost;  no specialised storage conditions needed just cool / clean / dry area;  e.g. fruit, meat, fish, herbs, spices, coffee, pulses;</p> <p><b>cook-chill (max 4)</b>  cook-chill foods are prepared and cooked in the factory;  food is chilled rapidly to below 3 °C to remove heat / prevent growth of bacteria;  food should be stored at a temperature of between 0 °C and 3 °C to retard / prevent growth of microorganisms;  food must be reheated until centre reaches at least 72 °C;  can only be kept for a few days;  can only be reheated once;</p> <p><b>generalised points (max 7)</b>  quick / save time in cooking and preparation;  saves fuel energy due to fewer cooking processes / quick reheating / people have microwaves for easy reheating of food;  may be cheaper / less waste than making meal from scratch / no need to buy separate ingredients;  require little skill / can be used by people with limited skills / easy to prepare / may include cooking instructions;  may have extra nutrients added;  less equipment needed;  less washing up / can be cooked in and eaten from the container;  can be stored / long shelf life / people have freezers for easy / safe storage of food / shopping can be done less often / can be used for emergencies;  good range of products available / likes and dislikes of family members can be easily catered for;  can buy in one portion sizes / portion control / suit people living on their own / good for families who eat at different times;  often have nutrition labelling for information;  ranges for intolerance / allergy / healthy option;  consistent quality / result;  can be used as components of meals;  able to eat foods when not in season;  able to experience food from other cultures;  can be easily transported;</p>	15

Question	Answer	Marks
9(b)	<p><b>It is important to plan meals carefully to ensure a healthy diet. Explain how a female office worker can achieve a healthy diet.</b></p> <p>sedentary workers use low energy in their occupation / energy balance, i.e. input should equal output;            ensure adequate provision of iron;            iron needed to replenish that lost during menstruation;            ensure adequate provision of vitamin C;            vitamin C needed for absorption of iron;            ensure adequate provision of calcium / phosphorus / vitamin D;            calcium / phosphorus / vitamin D guard against osteoporosis;            reduce fat intake / reduce fat in recipes;            use white meat / chicken instead of red meat;            eat more fish;            choose lean meat;            trim visible fat off meat;            grill / boil / steam / stir-fry instead of frying / avoid deep frying;            drain fried food on absorbent paper;            avoid fatty snacks such as crisps / nuts;            eat less cheese / use low fat cheese;            change to skimmed / semi-skimmed / low fat milk;            less baked foods with hidden fat such as pastry / cakes / biscuits;            reduce sugar intake / reduce sugar in recipes;            use artificial sweetener;            eat fruit in natural juice not syrup;            eat less chocolate / sweets / cakes;            drink low calorie / sugar free / diet drinks;            ensure adequate dietary fibre / NSP in diet;            use wholemeal flour / pasta / brown rice / whole wheat bread / breakfast cereals with bran;            snack on / increase fresh fruit and vegetables;            reduce intake of processed high fat / high sugar food;            read food labels to check for fat / sugar / calories;            ensure adequate intake of fluids / water;            follow nutritional tools;</p>	15