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.

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Cambridge IGCSE®, Cambridge International A and AS Level components and some
Cambridge O Level components.

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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
<table>
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<th>Question</th>
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<tbody>
<tr>
<td>1 (a)</td>
<td>hydrogen – oxygen;</td>
<td>[1]</td>
<td></td>
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<tr>
<td>(b) (i)</td>
<td>monosaccharides simplest form of carbohydrate / simple sugars / base unit from which carbohydrates are made / product of digestion of carbohydrate; examples glucose – fructose – galactose;</td>
<td>[2]</td>
<td></td>
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<tr>
<td>(ii)</td>
<td>polysaccharide made from more than two / many monosaccharides / sugars; examples starch – pectin – dextrin – glycogen – cellulose;</td>
<td>[2]</td>
<td></td>
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<tr>
<td>(c) (i)</td>
<td>invertase – sucrose (to glucose and) fructose;</td>
<td>[1]</td>
<td></td>
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<tr>
<td>(ii)</td>
<td>digestion of carbohydrates lactase – lactose (to glucose and) galactose;</td>
<td>[1]</td>
<td></td>
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<tr>
<td>(e) (i)</td>
<td>sugar – chocolate – honey – energy drinks;</td>
<td>[1]</td>
<td></td>
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<tr>
<td>(f)</td>
<td>excess energy stored as fat; leads to overweight / obesity; diabetes; CHD / heart disease / stroke; hypertension; damage to joints / arthritis; risk of complications during surgery / pregnancy; varicose veins; hernia; loss of confidence; insufficient energy leads to weight loss; becoming underweight; tired; headaches; muscle waste; use up fat stores; loss of confidence; anorexia nervosa; problems producing milk when lactating; slows down recovery during / after illness;</td>
<td>[4]</td>
<td></td>
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<td>(g)</td>
<td>rate at which the body uses energy when completely at rest/to stay alive/to keep the body functioning;</td>
<td>[1]</td>
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<tr>
<td>2 (a)</td>
<td>promotes absorption of calcium/phosphorus; formation of bones/teeth; maintenance of bones/teeth; prevents rickets in children; prevents osteomalacia in adults; osteoporosis; growth;</td>
<td>[2]</td>
<td></td>
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<tr>
<td>(b)</td>
<td>oily fish/one named example – fish liver oil/one named example – milk – cheese – margarine – eggs – butter – liver – fortified breakfast cereal –</td>
<td>[2]</td>
<td></td>
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<tr>
<td>(c) (i)</td>
<td>rickets</td>
<td>[1]</td>
<td></td>
</tr>
<tr>
<td>(iii)</td>
<td>calcium and phosphorus;</td>
<td>[1]</td>
<td></td>
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<tr>
<td>(d)</td>
<td>people who are house-bound – not outdoors so not exposed to sunlight; those who cover their body for religious reasons – although outdoors, sun cannot reach skin; people who live in industrial/polluted areas – sunlight prevented from reaching them by smoky atmosphere; people suffering from polymorphic light eruption/ photosensitivity – allergic to sunlight;</td>
<td>[4]</td>
<td></td>
</tr>
<tr>
<td>3 (a) (i)</td>
<td>dehydration</td>
<td>[1]</td>
<td></td>
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<tr>
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<td>(b)</td>
<td>people who are ill – fluid needs to be replaced due to raised temperature/sweating; lactating mothers – water required for production of milk for baby; manual workers – water lost in perspiration/to keep cool; athletes/active people – to keep cool/replace water lost in perspiration; those who live in hot climates – water evaporated from body to keep cool; those who have lost blood in accidents/surgery – fluid volume replaced; suffers from diarrhoea/vomiting – water loss must be replaced; sufferers from constipation – process impacted faeces/allow faecal transit;</td>
<td>[2]</td>
<td></td>
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| 4        | provide protein foods – to repair worn out cells; provide iron – to prevent anaemia; include vitamin C – to absorb iron – immunity; provide calcium/phosphorus – to maintain bones and teeth – prevent osteoporosis – for blood clotting – muscle function; include vitamin D – to absorb calcium; fewer carbohydrate foods – elderly may be less active; low in saturated fat – reduces risk of CHD/stroke/obesity; reduce salt – reduces risk of hypertension/high blood pressure; reduce sugar – reduces risk of tooth decay – obesity – higher sugar intake is linked to diabetes; increase fruit and vegetables – NSP – less risk of constipation; small portions – appetite reduces with age; remove bones/skin – eyesight may be poorer; food needs to be easy to eat/chew – cut into small pieces/mince – elderly may have few teeth/dentures; soft foods – easier to eat/swallow; variety of colour – flavour – texture – to add interest – make appetising; reduce spices and strong flavours – these are less easily tolerated; | [6] | }
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| 5 (a)    | A salad vegetables in salad drawer  
B bananas not kept in fridge  
C raw minced beef lowest shelf / above crisper  
D milk in door compartment  
E trifle top shelf  
F cooked chicken shelf above minced beef | [5] | |
| 5 (b)    | do not overload;  
do not open door too often / leave door open;  
do not store raw food above cooked food;  
do not place hot food in the refrigerator;  
do not keep out of date food;  
keep food covered;  
rotate stock;  
keep food in correct place in the refrigerator;  
defrost regularly;  
clean inside regularly / clean up spills;  
check refrigerator is working properly;  
check temperature is 0 – 5 °C;  
do not keep out of date food / throw away rotten or mouldy food; | [5] | |
| 5 (c)    | mould; yeast; | [2] | |
| 6 (a)    | flour, butter, milk; | [1] | |
| 6 (b)    | moist heat on starch;  
grains soften;  
grains swell as liquid absorbed;  
(80 °C) some grains rupture;  
releasing starch (granules);  
liquid thickens; | [4] | |
| 6 (c) (i) | milk added too quickly / too much milk added at a time;  
milk added on heat;  
not stirred well between each addition of milk;  
not stirred during boiling; | [2] | |
| 6 (c) (ii) | inaccurate weighing / proportions of ingredients;  
too much liquid;  
not enough flour;  
derundercooked / not heated to correct temperature for long enough;  
starch has not gelatinised; | [2] | |
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<td>(d)</td>
<td>add moisture – gravy with roast meat/custard with apple pie; add nutrients – milk or egg in custard/chocolate sauce/cheese sauce; add colour – tomato sauce with pasta/jam sauce with sponge pudding; add flavour – cheese sauce with cauliflower/mint sauce with lamb; counteract richness – apple sauce with roast pork/orange sauce with duck; add interest/variety – chocolate sauce with ice cream; add contrasting texture – bread sauce with roast poultry/parsley sauce with fried fish; binds food together – rissoles;</td>
<td>[4]</td>
<td></td>
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<tr>
<td>(e) (i)</td>
<td>use unsalted/reduced salt butter; use reduced/low salt ham; replace ham with alternative ingredient; use reduced/low salt cheese; omit salt and replace with low salt/herbs; do not fry mushrooms in butter;</td>
<td>[2]</td>
<td></td>
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<tr>
<td>(ii)</td>
<td>change ham to lean ham/remove fat; omit butter/use low fat margarine/butter/spread/make a blended sauce; use skimmed/semi-skimmed milk; use reduced fat cheese; no skin/fat on chicken; do not fry mushrooms; do not use fat in the mashed potato;</td>
<td>[2]</td>
<td></td>
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<tr>
<td>(iii)</td>
<td>remove chicken/ham; replace with a protein alternative egg/soya/tofu/TVP/pulses;</td>
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<td>(b)</td>
<td>source of LBV protein; valuable in vegan diet to give HBV/soya HBV; low fat; source of iron; provide carbohydrate/starch so are filling; provide NSP; source of B₁/B₃; source of calcium; vegan may lack (HBV) protein in the diet; easy/cheap to produce; dry so easily stored; give variety to meals; add texture/flavour; useful as meat replacement/extender;</td>
<td>[3]</td>
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### Question 2 (c)

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<td>soak for up to 12 hours to take up water lost during drying/to allow them to soften or swell or cook more quickly;</td>
<td>[3]</td>
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<tr>
<td>drain and rinse the beans, then cover them with fresh water;</td>
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<tr>
<td>boil for 15 minutes which destroys toxins/lectin in kidney beans to prevent food poisoning;</td>
<td></td>
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<tr>
<td>simmer for around 45–60 minutes to make them tender;</td>
<td></td>
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<tr>
<td>do not add salt until the end of cooking as it toughens the skin and stops the inside from becoming tender;</td>
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</table>
**Question**

8 (a)

**Answer**

*reasons for preserving food*
- to provide food when supply is limited (famine / war);
- to enjoy food out of season;
- to save money by buying food when it is cheap and plentiful;
- to give variety / new products made like jam or pickles;
- to cope with a glut;
- to prevent waste;
- to extend shelf life / prevent food spoilage / growth of mould;
- to allow food to be transported;
- to enjoy produce from other countries;
- to store when quality is best and cost is lowest;
- to retain as many of the qualities of fresh food as possible, e.g. flavour / colour / appearance / texture / nutritive value;

*methods of freezing vegetables*
- select best quality;
- prepare according to type / wash / peel / cut;
- blanch to destroy enzymes / bacteria;
- cool rapidly;
- open freeze as easier to thaw and use later;
- set freezer at ‘fast freeze’ 2–3 hours to prevent formation of large ice crystals which damage cell walls;
- cover / seal / wrap to prevent air entry / evaporation of moisture;
- air should be removed from package to prevent ‘freezer burn’;
- label with name and date to identify;

*methods of making fruit jam*
- use ripe or just underripe fruit with more pectin;
- prepare fruit by removing inedible parts / stones, cutting them up, and washing them;
- boil / stew fruit to soften and release pectin;
- wash and warm jars in the oven;
- add sugar when skins are soft;
- stir until sugar is dissolved to prevent burning on bottom of pan;
- boil rapidly to reach setting point;
- test for setting point / wrinkle test / flake test / correct temperature / 220 °C;
- fill warmed jars to the top so less room for air as jam contracts when cooling;
- seal;
- label with name and date so can be used in rotation / to identify;

*freezing principles*
- bacteria need warmth and moisture to multiply;
- water in cells frozen so unavailable for growth of bacteria;
- bacteria inactive / dormant at low temperatures / –18 °C;
- enzyme activity is slowed down at low temperature;

*fruit jam making principles*
- heat during process destroys microorganisms;
- high sugar content (60%) inhibits growth of microorganisms;
- sealed in jars to prevent entry of microorganisms;

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**Mark**

[15]

For full marks, candidates should:

- demonstrate a detailed, sound and balanced understanding of the topic;
- refer to relevant examples;
- use correct terminology;
- provide comments which are precise and relevant;
- answer in a well-organised and clearly presented way.
create a budget/have a fixed amount of money to spend/use cash;
use basket rather than trolley to prevent buying more than needed;
choose food that the family like and will eat;
plan meals to minimise wastage of food and money;
make a shopping list/only come out with what you went in for;
buy foods in season;
use local farms/markets/pick your own foods;
do not shop when hungry as this can lead to impulse buys;
buy foods with a long best before date to give longer time to
use/less waste;
use website to compare supermarket prices/shop around;
choose cheaper cuts of meat/fish;
look for special offers in shops/BOGOF/save ’money off’ coupons;
buy supermarket own brand label;
buying in bulk can be cheaper if suitable storage available;
avoid processed/convenience food as it can be expensive;
only buy enough for your needs;
use LBV protein foods;
use cheaper sources of HBV protein;
buy food reduced at the end of the day;
use more pasta/rice as it is cheap and filling;
tinned and frozen fruit and vegetables can be cheaper than fresh;
vegetables/beans/soya can be used to extend meat;
exchange ingredients such meat/for vegetables in a recipe;
make your own sauce/paste/houmous as it may be cheaper than
from the shop;
compare prices per 100 g/unit to get best value;
use leftover food as next day meals;
avoid waste by peeling fruit and vegetables thinly;
buy food in good condition, e.g. not bruised fruit, so that it lasts;
use quick methods of cooking such as microwave/pressure
cooking/frying/grilling to save fuel;
use a slow cooker for cooking cheaper cuts of meat;
use tiered steamers to cook a whole meal;
cook just enough to avoid wasting food;
batch bake/cook in bulk so that some can be used immediately
and some frozen;
cut food into smaller pieces as it cooks quicker;
keep lid on pan to retain heat and cook faster, so use less fuel;
use only the amount of water needed in kettle/pan so use less fuel;
do not overcook food;
cook food when needed so no need to reheat;
use materials which are good conductors of heat for pans, e.g. cast
iron, copper;
have flat-based pans to have good contact between hotplate and
pan;
size of pan should fit hotplate to avoid wasting fuel around base of
pan;
reduce size of flame because it wastes fuel if flames reach up the
sides of the pan;
cook the whole meal in the oven or on the hob;
minimise preheating time of oven;
turn off heat before cooking has finished to use residual heat;
| do not cook separate meals for individuals in the family; use divided saucepans; boil two things together, e.g. peas and carrots; |