

Mark Scheme (Results)

Summer 2013

GCSE Design & Technology Food  
Technology (5FT02)

Knowledge & Understanding of  
Food Technology

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Summer 2013

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Question Number	Answer	Mark
1	A	(1)
Question Number	Answer	Mark
2	C	(1)
Question Number	Answer	Mark
3	A	(1)
Question Number	Answer	Mark
4	D	(1)
Question Number	Answer	Mark
5	A	(1)
Question Number	Answer	Mark
6	B	(1)
Question Number	Answer	Mark
7	D	(1)
Question Number	Answer	Mark
8	B	(1)
Question Number	Answer	Mark
9	C	(1)
Question Number	Answer	Mark
10	C	(1)

Question Number	Answer	Mark
11. (a)	Measuring scales/weighing scales (1)  Do not accept 'scales' on its own.	To weigh food / ingredients
	Scissors	To cut food, open packaging, prepare paper for lining tins/piping nozzles. (1)
	Spatula (1)	To mix, spread or lift food
	Bread maker/ Bread machine (1)	Mixing, combining, kneading, proving and baking dough
	4 x 1	
Question Number	Answer	Mark
11.(b)(i)	One type of fat: <ul style="list-style-type: none"> <li>• Butter</li> <li>• Lard</li> <li>• Margarine</li> <li>• Suet</li> <li>• Trex</li> <li>• Ghee</li> <li>• Named commercial product</li> </ul>	(1)
Question Number	Answer	Mark
11.(b)(ii)	One type of oil: <ul style="list-style-type: none"> <li>• Vegetable</li> <li>• Olive</li> <li>• Sunflower</li> <li>• Palm</li> <li>• Corn</li> <li>• Nut</li> <li>• Sesame</li> <li>• rape seed oil</li> </ul>	(1)

Question Number	Answer	Mark
11.(b)(iii)	Difference between fat and an oil: <ul style="list-style-type: none"> <li>• A fat is <b>solid</b> (1)</li> <li>• A fat will have a <b>higher melting point</b> than oil (1)</li> <li>• Oil is <b>liquid</b> (1)</li> <li>• Oil has a lower <b>melting point</b> than fat (1)</li> <li>• A fat is <b>solid</b> (1); an oil is not at <b>room temperature</b> (1)</li> <li>• Oil is <b>liquid</b> (1); a fat is not at <b>room temperature</b> (1)</li> <li>• Fat can originate from a <b>plant</b> (1) and/or an <b>animal source</b> (1)</li> <li>• Oil originates from a <b>plant</b> (1) and/or a <b>fish source</b> (1)</li> </ul> Linked responses acceptable.	(2)
11.(b)(iv)	State the name of this deterioration process: <ul style="list-style-type: none"> <li>• Rancidity</li> <li>• Hydrolytic rancidity</li> <li>• Oxidative rancidity</li> </ul> Do not accept 'Hydrolytic' or 'Oxidative' on its own.	(1)
11.(c)(i)	One named primary food from a plant source: <ul style="list-style-type: none"> <li>• Named fruit / Fruit(1)</li> <li>• Named vegetable/ Vegetables (1)</li> <li>• Cereal (oats/wheat/rice/barley/rye/maize/corn) (1)</li> <li>• Soya (1)</li> <li>• Oil (1)</li> <li>• Sugar (1)</li> </ul>	(1)

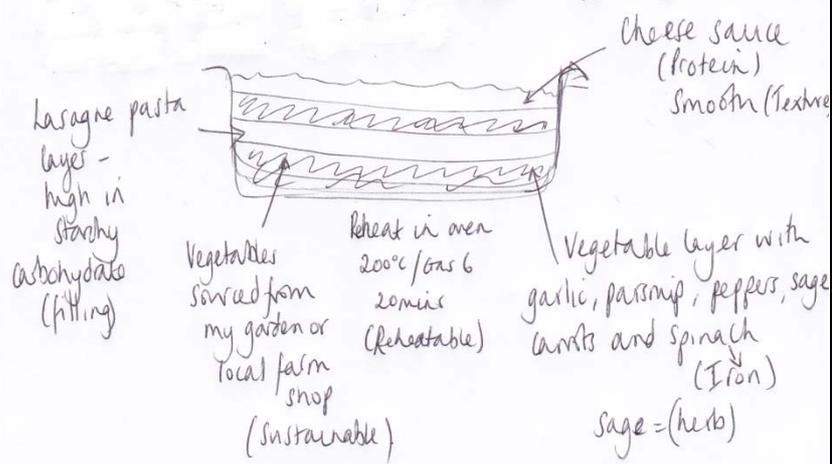
11.(c)(ii)	<p>Describe how meat may be processed into a secondary food product.</p> <ul style="list-style-type: none"> <li>• Butchered (1) into a cut of meat (1)</li> <li>• outer layers removed (1) to expose flesh (1)</li> <li>• waste (bones, excess fat, skin etc) removed (1) into a cut of meat (1) named product (1)</li> <li>• internal organs removed (1) to make pate and pie fillings (1)</li> <li>• minced (1) to make pie fillings and sausages (1)</li> <li>• chopped (1) to make pie fillings, casseroles, stews and curries (1)</li> <li>• sliced (1) to make steaks, cold cuts, portions (1)</li> <li>• cooked (1) to make pie fillings, ham, gammon (1)</li> <li>• preserved (1) to make cured meats (1)</li> </ul> <p>into any <b>named</b> (1) food product (sausages/pate/cured meats/pie filling/ready meal)</p>	(2)
11.(c)(iii)	<p>Describe <b>two</b> characteristics of industrial machinery used in the food industry:</p> <ul style="list-style-type: none"> <li>• The <b>purchasing/operating/maintenance/energy costs</b> (1) of industrial equipment are <b>far greater</b> (1) than domestic equipment because of the <b>size and scale of production</b> (1).</li> <li>• <b>Machinery is made from stainless steel</b> (1) because it is <b>easy to clean/maintain /prevents cross contamination/does not rust/withstands sterilisation temperatures/robust/strong/tough/durable/hard / resistance to wear and tear</b> (1)</li> <li>• <b>Machinery is much bigger</b> (1) to accommodate the <b>larger quantities of ingredients for batch/mass/high volume production.</b> (1)</li> <li>• <b>Many machines can perform a number of different functions</b> (1) to allow for <b>production methods to be changed or adapted.</b> (1)</li> <li>• <b>Machinery has timers/sensors monitoring equipment</b> (1) to allow for <b>quality control.</b> (1)</li> <li>• <b>Industrial machinery is automated/ mechanised</b> (1) requiring <b>little or no human input/human error/operates continuously 24/7 / quick</b>(1)</li> </ul> <p style="text-align: right;">(2x2)</p>	(4)

11(d)	<p>State <b>two</b> advantages of one off production:</p> <ul style="list-style-type: none"> <li>• Unique design/ individual (1)</li> <li>• Fresh (1)</li> <li>• High quality product (1)</li> <li>• Made to order (1)</li> <li>• Less waste (1)</li> <li>• Specific: <ul style="list-style-type: none"> <li>○ shape (1)</li> <li>○ size (1)</li> <li>○ colour (1)</li> <li>○ flavour (1)</li> <li>○ ingredients (1)</li> <li>○ budget/cost consideration (1)</li> <li>○ quantity (1)</li> <li>○ date (1)</li> <li>○ occasion (1)</li> <li>○ special diets (1)</li> <li>○ personalised message (1)</li> <li>○ image (1)</li> <li>○ decoration (1)</li> </ul> </li> </ul> <p style="text-align: right;">(2x1)</p>	(2)
11(e)	<p>Describe <b>two</b> modifications that would make the sponge cake suitable for someone following a diabetic diet.</p> <ul style="list-style-type: none"> <li>• Careful control / reduce/less of sugar intake by using less sugar/sweeten naturally with fruit/reduce to half sugar/use artificial sweetener/remove butter icing and replace with fruit compote/ reduce amount of icing/ use low fat crème fraiche.</li> <li>• High fibre diets to satisfy appetite by changing flour to wholemeal flour/adding fruit to cake/removing butter cream and adding fresh fruit.</li> <li>• Sweeten foods with natural sugars from fruit, vegetables and juices rather than using refined/processed sugar.</li> <li>• Use diabetic/ low sugar jam which contains no processed sugar to affect blood sugar level, instead relies on natural sweetness of fruit/compote.</li> <li>• Use artificial sweeteners sparingly because they are extremely sweet and can lead to hyperactivity in children.</li> </ul> <p>Interlinked responses acceptable.</p> <p style="text-align: right;">(2x2)</p>	(4)

Question Number		Mark
12	<p data-bbox="387 264 576 297"><b>Design idea 1</b></p> <p data-bbox="387 331 1082 398">Candidates should answer any specification point in graphical form and by annotation.</p> <ul data-bbox="440 456 1222 1637" style="list-style-type: none"> <li data-bbox="440 456 991 562">• <b>Be suitable for a named group of vegetarians(1):</b> lacto/ovo lacto/ovo/ demi/ semi/vegan/ pescatarian (fish)</li> <li data-bbox="440 584 1015 786">• <b>Be filling(1):</b> quantities of ingredients/portion size/ named starch ingredient /high in fibre/pastry/bread/panini/pancakes/ potato/pasta/pasties/rice/lentils/cous cous/noodles.</li> <li data-bbox="440 819 1166 925">• <b>Include a good source of protein (1):</b> use of eggs/ milk/cream/yogurt/ cheese/ fish/ Soya/Tofu/TVP/Quorn.</li> <li data-bbox="440 958 1110 1064">• <b>Include a good source of iron (1):</b> green leafy vegetables/apricots/bread/potatoes/egg yolk/broccoli</li> <li data-bbox="440 1086 1066 1191">• <b>Include a fresh seasoning ingredient (1):</b> Parsley/coriander/rosemary/thyme/sage/g arlic /oregano/dill/basil/chilli/bay</li> <li data-bbox="440 1225 1137 1292">• <b>Include a sensory quality linked to texture (1):</b> smooth/ crunchy/ crispy/ flaky/ chunky/ soft.</li> <li data-bbox="440 1326 1222 1431">• <b>Be able to be reheated easily (1):</b> maybe reheated in oven/ grill/ microwave/all ingredients have been previously cooked, so may be eaten cold.</li> <li data-bbox="440 1464 1145 1637">• <b>Be sustainable (1):</b> seasonal/local/reducing food miles/reducing packaging/recycled packaging/minimum wastage/ use of cleaning technique for vegetables to minimise water/fair-trade/organic/free range.</li> </ul>	

Vegetarian Menu Meal 2013.

Design 1 Vegetarian Lasagne. (Ovolacto)  
(eggs, dairy but no meat, fish)



**Design idea 2**

Marks for design idea 2 can only be awarded where specification points are resolved differently than in design idea 1.

Example of candidate response:

Design 2.

Vegetarian Curry. (Lacto Vegetarian)

(Dairy, but no eggs/meat/fish)

Parsley (herb) sprinkled on top.

Vegetable + lentil Dahl  
with soya (protein)

Naan bread  
(cereal grains = Iron)

Brown rice  
(starchy  
carbohydrate-  
filling)



Plate.

Seasonal vegetables  
used in curry.

Nutty rice (texture)

(Sustainable)

Reheat in microwave oven 2mins high power on plate/indish.

13 (a)	<p><b>Property:</b> Thick/set/gel (1)  <b>Justification:</b> Gelatinised starch/sets upon cooling / separates layers/ holds layers in place (1)</p> <p><b>Property:</b> Combination of textures (1)  <b>Justification:</b> smooth/thick/glossy (1)</p> <p><b>Property:</b> Bright colour/combination of colours (1)  <b>Justification:</b> brown due to chocolate/contrast with orange/sponge/cream layer (1)</p> <p><b>Property:</b> Smooth/thick/glossy (1)  <b>Justification:</b> To contrast with the other layers in the trifle (1)</p> <p><b>Property:</b> Nutritional content  (Protein/fat/calcium/vitamin D/ carbohydrate (1)  <b>Justification:</b> Named custard ingredient linked to the named nutrient (1)</p> <p><b>Property:</b> flavour (1)  <b>Justification:</b> contrast with other ingredients</p> <p><b>Property:</b> chocolate is a popular ingredient (1)  <b>Justification:</b> good texture/taste/flavour/rich/luxurious (1)</p>	(2)
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13 (b)	<p>List <b>two industrial</b> food preparation or processing techniques for the fruit layer.</p> <p>Two techniques from:</p> <p>Separation processes:</p> <ul style="list-style-type: none"> <li>• wet cleaning(1)</li> <li>• dry cleaning (1)</li> <li>• washing (1)</li> <li>• spraying (1)</li> <li>• sorting (1)</li> <li>• grading of fruit(1)</li> </ul> <p>Size reduction:</p> <ul style="list-style-type: none"> <li>• chopping (1)</li> <li>• slicing (1)</li> <li>• dicing (1)</li> <li>• shredding (1)</li> </ul> <p>Mixing /combining:</p> <ul style="list-style-type: none"> <li>• ingredients/components (1)</li> </ul> <p>Do not accept cooking</p> <p>Accept any combination of the above answers.</p>	(2)
13(c)	<p>One way explained:</p> <ul style="list-style-type: none"> <li>• <b>The cream/jelly/milk/fruit (1) are high in moisture/ protein (1) so have a short shelf life/high risk of food poisoning (1)</b></li> <li>• <b>Fixed number of identical items (1) which can make use of changes to seasonal fruit (1)</b></li> <li>• <b>Strong competition as wide choice of trifles (1) available/huge variety of desserts on the market (1)</b></li> <li>• <b>Layers may separate (1) which spoils appearance (1)</b></li> <li>• <b>Trifle must be chilled (1) as it has a short shelf life/date marks and stock rotation of ingredients to minimise contamination (1)</b></li> <li>• <b>Popular product (1) there is a high demand for it / traditional food product/quantity (1)</b></li> </ul>	(2)

13 (d)(i)	<p>Explain how the fruit trifle is successful at meeting the following specification points:</p> <p>Environmentally friendly:</p> <ul style="list-style-type: none"> <li>• Seasonal/local produce (1) to reduce food miles/plentiful supply (1)</li> <li>• Fair-trade ingredients (1) to support farmers to ensure they have a fair wage for their work (1)</li> <li>• Organic/free range ingredients (1) to ensure food safety standards and levels of welfare (1)</li> <li>• Reducing packaging/recycle/reuse/reduce/minimum wastage (1) to prevent landfill/pollution/environmental impact (1)</li> <li>• Choice of cleaning technique for fruit (1) to minimise water use/protect earth's resources (1)</li> </ul>	(2)
13(d)(ii)	<p>Be eye-catching to attract consumers:</p> <ul style="list-style-type: none"> <li>• a variety of colours (1) because of the layers (reference to named layers) (1)</li> <li>• A decorative finish (1) because of piping/ layers (1)</li> <li>• Provide contrasts in colour (1) between layers/cream/chocolate (1)</li> <li>• Use of individual/decorative container (1) because of its appeal to named group of consumers (1)</li> <li>• Use of clear containers (1) to allow customer to see the contents (1)</li> </ul>	(2)

13(e) QWC	<p>Evaluation to address the following issues:</p> <ul style="list-style-type: none"> <li>• Recipe B uses standard components/readymade ingredients which saves money/time/labour/ensures consistent quality. Recipe A does not.</li> <li>• For Recipe B thickening agent is used to prevent excessive moisture thus affecting the texture and appearance of the product/prevents separation.</li> <li>• Recipe B contains standard components that contain additives; this assists with the quality of the product. Recipe A is additive free.</li> <li>• Manufacturers are trying to reduce the additives that they use in products due to consumer demand and safety.</li> <li>• In Recipe B additional salt and fat are added to the recipe to extend the shelf life of the product.</li> <li>• Recipe B is likely to be cheaper than Recipe A as cost per unit is cheaper than buying fresh/less wastage/bulk buy ingredients.</li> <li>• Recipe B is easier to produce than Recipe A as automated processes uses less equipment.</li> <li>• Recipe B lower in fat, so reduced shelf life/healthier (semi-skimmed/skimmed)</li> <li>• Recipe B artificial colours and flavours added to recipe to restore colours/flavours lost through processing.</li> <li>• Recipe A more natural/ homemade quality. Recipe B made in a factory/ commercial product.</li> </ul>	
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Level	Mark	Descriptor
	0	No rewardable material
Level 1	1 - 2	Candidate identifies the area(s) of comparison with no development OR identifies and develops one area. Shows limited understanding of the comparison. Writing communicates ideas using everyday language but the response lacks clarity and organisation. The student spells, punctuates and uses the rules of grammar with limited accuracy.
Level 2	3 - 4	Candidate identifies some areas of comparison with associated development showing some understanding of the comparison. Writing communicates ideas using D&T terms accurately and showing some direction and control in the organising of material. The student uses some of the rules of grammar appropriately and spells and punctuates with some accuracy, although some spelling errors may still be found.

	Level 3	5 - 6	Candidate identifies a range of areas of comparison with associated developments showing a detailed understanding of the comparison. Writing communicates ideas effectively, using a range of appropriately selected D&T terms and organising information clearly and coherently. The student spells, punctuates and uses the rules of grammar with considerable accuracy.	(6)

14(a)	Unit of energy: <ul style="list-style-type: none"> <li>• Kilo calorie</li> <li>• Kilo joule</li> <li>• KJ</li> <li>• Kcal</li> <li>• Calorie</li> <li>• Joule</li> <li>• Mega joule</li> </ul>	(1)
14(b)	<ul style="list-style-type: none"> <li>• <b>Mechanical</b> : A named movement/movement of muscles/controlling internal organs/kinetic (1)</li> <li>• <b>Chemical</b>: A named chemical reaction in the body: digestion/respiration/metabolic rate (1)</li> <li>• <b>Electrical</b>: nerve impulses/ nervous system/ brain (1)</li> </ul>	(3)
14(c)	Explain the term energy balance.  The relationship between food and drink intake (1) and energy output/activity (1) is called energy balance	(2)
14(d)	List <b>two</b> factors that affect our need and requirements for food: <ul style="list-style-type: none"> <li>• age (1)</li> <li>• gender / sex (1)</li> <li>• health/well-being (1)</li> <li>• weight (1)</li> <li>• physical activity levels (1)</li> <li>• occupation (1)</li> <li>• climate in which we live (1)</li> <li>• customs (1)</li> <li>• culture (1)</li> <li>• religion (1)</li> <li>• medical (1)</li> <li>• special diet/allergy (1)</li> </ul>	(2)

14(e)	<p>Describe one factor to consider when planning meals for a young pre-school child.</p> <ul style="list-style-type: none"><li>• Reliant on their parents for choosing and providing food (1) so parents need to be educated about the nutritional suitability of foods (1)</li><li>• Eating habits and nutritional patterns can be established (1) from an early age to allow children to enjoy eating (1)</li><li>• A period of rapid growth and development (1) requires a balanced diet to support healthy development (1)</li><li>• Protein, starchy carbohydrates, vitamins and minerals (1) form a healthy balanced diet (1)</li><li>• Breakfast, lunch and tea, with healthy snacks (1) as appropriate to avoid grazing/obesity/ satisfy hunger.</li><li>• Easy to hold food (1) to prevent wastage (1)</li><li>• Suitable sized portions (1) to satisfy appetite (1)</li><li>• Interesting shapes, textures, colours and flavours (1) to give variety in the diet (1)</li><li>• A variety of foods (1) to encourage children to try new foods (1)</li><li>• A variety of foods (1) to avoid becoming reliant on a limited diet/ offer nutritional balance in the diet (1)</li></ul>	(2)
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14(f)

Most food items need to be packaged.

Discuss the role of food packaging to ensure that the food remains in prime condition for the consumer.

- The type of food, preparation, processing and production methods that have been used to create the food product and the desired storage life of the food product will determine the type of packaging selected for each product.
- Legislation from the Food Safety Act 1990 applies to the packaging of food products and links to the functions of food packaging.
  - **Protect** food from damage and reduce food wastage. This could include:
    - Physical damage such as bruising
    - Deterioration through high or low humidity.
    - Temperature change which can cause over ripening of fruits.
  - **Safety and hygiene** of foods to prevent contamination from chemicals, micro-organisms and insect attack and cross contamination from other foods.
  - **Increase the storage life** of food by maintaining the food in the condition that consumers expect. This might be as fresh food or processed food that has been subjected to preservation treatments.
  - **Contain** the food in a condition appropriate for consumption.
  - **Storage**, transportation and retail of food, requires packaging to maintain food in the condition appropriate for consumption.
  - **Convey information** using the label, found on the packaging. This must include details about contents, weight, nutrition, price, date marks, storage and cooking guidelines, where appropriate to the food product.
  - **Promote** the food product using advertising and marketing techniques, to attract and persuade the consumer to purchase the food. This will be through the use of colour, style, shape of the packaging and text, as well as digital images, cartoon characters, recipes or celebrity endorsement.
- Specialist packaging materials: Ovenable paperboard/ Modified atmosphere packaging (MAP / Tamper-evident seals)
- Named packaging materials (glass/paper/cardboard/plastic/metal) linked to advantages/disadvantages for each type and relevance to named food products.

(6)

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Level 1	1 - 2	Candidate identifies the issues with no development OR identifies and develops one area. Shows limited understanding of the issues. Writing communicates ideas using everyday language but the response lacks clarity and organisation. The candidate spells, punctuates and uses the rules of grammar with limited accuracy.
Level 2	3 - 4	Candidate identifies some issues with associated developments showing some understanding of the issues. Writing communicates ideas using D&T terms accurately and showing some direction and control in the organising of material. The candidate uses some of the rules of grammar appropriately and spells and punctuates with some accuracy, although some spelling errors may still be found.
Level 3	5 - 6	Candidate identifies a range of issues with associated developments showing a detailed understanding of the issues concerning safety and quality. Writing communicates ideas effectively, using a range of appropriately selected D&T terms and organising information clearly and coherently. The candidate spells, punctuates and uses the rules of grammar with considerable accuracy.

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