

Mark Scheme (Results)

Summer 2010

GCSE

GCSE Design and Technology:
Food Technology (3970)
Paper 2H
Higher Written Paper.

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Publications Code.

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General Marking Guidance

- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- Examiners should mark according to the mark scheme not according to their perception of where the grade boundaries may lie.
- There is no ceiling on achievement. All marks on the mark scheme should be used appropriately.
- All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.
- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.
- When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the team leader must be consulted.
- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

Question Number	Answer	Mark
	It is important that the point and reason both fully relate to form, function or user requirements.	
1(a)(i)	Quality	
	<p>Point: Adheres to designated tolerances: weight/filling/topping/crumb/no bones. Reason: Even distribution of ingredients/safer to eat.</p> <p>Point: Smooth sauce/creamy potato/crunchy crumb/flake fish. Reason: Desired textured/flavour/colour achieved</p> <p>Point: Even straight layers/identical/consistent Reason: To improve look of product/sell more.</p> <p>Point: Even piping Reason: To make it look attractive/cover top/seal filling.</p> <p>Point: Even spread of crumb topping Reason: To make it consistent/improve appearance/high quality finish.</p> <p>Point: To be a traditional main meal Reason: To meet consumer expectations</p> <p>Point: Fish is sourced from sustainable sources Reason: Manage fish stocks</p> <p>Point: Attractive/appealing/Tasty(any sensory quality) Reason: Make more people buy it</p> <p>Point: To be a traditional main meal Reason: To meet consumer expectations</p>	(2)

1(a) (ii)	Environment	
	<p>Point: Organic Reason: Free from contamination/protects wildlife</p> <p>Point: No GM Foods Reason: No mutation/cross breeding</p> <p>Point: Packaging suitable for recycling/biodegradable Reason: Prevent litter/waste/preserve resources/reduce pollution/reduce landfill.</p> <p>Point: Fish from sustainable sources/line caught Reason: Managing fish stocks/reducing over fishing</p> <p style="text-align: right;">(2x1)</p>	2
1(a) (iii)	Safety	
	<p>Point: No bones/nuts warning Reason: Risk of choking/allergies/harmful to consumer.</p> <p>Point: Clear instructions for storage/cooking/shelf life Reason: High Risk food, susceptible to food poisoning/perishable</p> <p>Point: Tamper evident packaging Reason: No contamination.</p> <p>Point: No artificial additives/ingredients Reason: Potentially dangerous/harmful to the consumer.</p> <p style="text-align: right;">(2x1)</p>	2

Question Number	Answer	Mark
1(b)	<p>Two reasons given:</p> <ul style="list-style-type: none"> • Compliments fish flavour (1) • Fish absorbs other flavours easily (1) • Cheese is a popular food product (1) • Flavour (1) • Fish is dry and sauce is moist/contrast with textures (1) • Sauce is a good medium to cook fish in(1) • Sauce adds yellow colour/stronger flavour/smooth different texture to pie (1) • Sauce heats up quickly upon cooking (1) • Increase nutritional value - protein, calcium <p style="text-align: right;">(2x1)</p>	2
1(c)	<p>Give two reasons give.</p> <ul style="list-style-type: none"> • Lightweight (1) • Even sized particles (1) • Combines well with grated cheese (1) • Small particles cook better (1) • Consistent texture (1) • Increasing surface area/create more volume (1) • Decorative (1) • Improve taste (1) • Increases working/melting time (1) <p style="text-align: right;">(2x1)</p>	2
1(d)	<p>Property: Alters texture of sauce (1) Reason: Gelatinises/thickens upon heating with a liquid (1) Property: Tasteless/colourless/opaque upon heating (1) Reason: Allows other flavourings/colours to be absorbed (1) Property: No syneresis/separation upon heating and cooling (1) Reason: Modified starch/ starch are used to bind all the ingredients together/thickens/gels (1) Property: Suitable for coeliacs (1) Reason: Cornflour does not contain the protein gluten (1) Property: Thickens on heating (1) Reason: Starch swells/absorbs liquid (1)</p> <p>Where property is incorrect, do not accept reason.</p> <p style="text-align: right;">(2x1) (2x1)</p>	4

<p>1(e)</p>	<p>One reason for sampling during manufacture of the fish pie. To ensure taste/safety of consumers by removing bones (2) To ensure taste/uniformity by checking weight of product/layers (2) To ensure taste/even distribution of components by checking consistency of layers/sauces/topping/crumb (2) Check micro-org (m/o) activity to prevent cross contamination (2) Ensure safety of consumers by checking storage/cooking temperatures to prevent cross contamination(2) To check consistency of sauce to produce a quality product/meet specification (2) Even distribution of potato because this makes it look attractive/appealing improve taste To taste sample product to check - alter/change/improve/flavour/consistency/texture of product/check nothing is wrong with product (2) Only accept taste once</p> <p style="text-align: right;">(2x1)</p>	<p style="text-align: center;">2</p>
<p>1(f)</p>	<p>Explain one reason why piping is used for finishing the potato topping. Even distribution of potato to improve appearance/control to improve appearance (2) To make browning of topping an even colour on top (2) To ensure a pleasant texture, with no lumps (2) Consistent finish as a machine is used (2) Even/decorative finish leads to quality/consistent/attractive appearance(2)</p> <p style="text-align: right;">(2x1)</p>	<p style="text-align: center;">2</p>

<p>1(g)(i)</p>	<p>One explanation given.</p> <p>Appeals to elderly people/families(1) - traditional main meal/interesting range of flavours/textures/taste (1)</p> <p>Easy to cook(1) - appeals to busy people/elderly/people unable to cook (1)</p> <p>Soft/hides fish (1) attracts children/adults</p> <p>Smooth creamy texture(1) - appeals to young children/older people(1)</p> <p>Contains HBV protein(1) - needed for growth and repair by all age groups(1)</p> <p>Convenience food(1) - minimal food waste (bones/skin) (1)</p> <p>Easy to eat (1) - already prepared (1)</p> <p style="text-align: right;">(2x1)</p>	<p style="text-align: center;">2</p>
<p>1(g)(ii)</p>	<p>Contains a variety of tastes and textures.</p> <p>Sauce has a smooth and creamy texture/taste(1) to compliment the other textures.(1)</p> <p>Crumb - crunchy(1) and provides a contrast in textures and flavours (1)</p> <p>Potato topping(1) - crispy to add texture (1)</p> <p>Fish filling - chunky/lumpy/soft texture/solid (1)which is easy to eat and provides contrast to other flavours(1)</p> <p>Cheddar cheese - compliments fish/sauce(1)/strong flavour/good taste/mouth feel (1)</p> <p>Allow any two relevant related points</p> <p style="text-align: right;">(2x1)</p>	<p style="text-align: center;">2</p>
<p>Total for question 1</p>		<p>22 marks</p>

Question Number	Answer	Mark
2(a) (i)	<p>Give three different types of pastry.</p> <ul style="list-style-type: none"> • Shortcrust (1) • Flaky (1) • Choux (1) • Filo (1) • Rough puff/puff (1) • Hot water crust (1) • Suet crust (1) <p style="text-align: right;">(3x1)</p>	3
2(a)(ii)	<p>Two different ingredients and function</p> <ul style="list-style-type: none"> • Fat (1): Colour/texture/flavour/shorten pastry/enrich pastry(1) • Flour(1): Create structure of pastry/aerate pastry/add bulk(1) (do not accept thicken) • Water/Milk (1): Bind dry ingredients together/ water converted to steam and acts as a raising agent(1) • Egg (1): Enriches pastry/binds pastry/adds colour/flavour (1) • Sugar (1): sweeten pastry (1) <p>Correct ingredient with function must be stated to receive full marks.</p> <p>Do not accept S.R. flow</p> <p style="text-align: right;">(2x1) (2x1)</p>	4
2(b)	<p>Explain one benefit of using standard components.</p> <ul style="list-style-type: none"> • Time saving (1)because it reduces the number of processes in the manufacturing/assembly production line/ready made or processed (1) • Ensures consistency/reliability/ uniformity(1), therefore each product is the same (1) • Reduces waste(1) because the manufacturer can order in the number of components required (1) • Cost saving (1)because less specialist machinery for manufacture (1) • Storage can be reduced(1) because components can be bought in when needed (1) • Quick (1) make more products (1) <p style="text-align: right;">(2x1)</p>	2

2 (c)	<p>Explain what is meant by the term tolerance.</p> <ul style="list-style-type: none"> Setting standards (1) for each component part of the product, related to weight/dimensions/shape/size/consistency/specification/rules/guidelines/recipe/ingredient list/extract standard (1) <p style="text-align: right;">(2x1)</p>	2
2(d)	<p>Four characteristics of using batch production for pasties.</p> <ul style="list-style-type: none"> Fast/quick (1) Reliable (1) Cost effective (1) Easy to adapt product line(meat/cheese) (1) 24/7/non-stop production line (1) All products are identical/consistent (1) Portion control (1) Lots of products (1) Fixed numbers (1) Machinery expensive (1) Energy use (1) <p style="text-align: right;">(4x1)</p>	4
2(e) (i)	<p>Three ways CAD can be used in food technology.</p> <ul style="list-style-type: none"> Package design (1) Nutritional analysis to profile a product (1) Costing analysis (1) Market research (1) Product design data/recipe adaptation (1) Scaling up (1) Product styling (weight/size/sensory/physical characteristics (1) <p style="text-align: right;">(3x1)</p>	3
2(e) (ii)	<p>Explain two ways CAM systems make the manufacturing process faster and more flexible.</p> <ul style="list-style-type: none"> CIM by controlling production. Fully automated, therefore no break in the production line/no human error. Continuous- 24/7 ensures speed and accuracy to meet deadlines Control quality by using quality control procedures, such as HACCP, portion control/final product weight control. Cost effective/cheaper than using/employing human labour Computer integrated manufacture <p style="text-align: right;">(2x1) (2x1)</p>	4
Total for question 2		22 Marks

Question Number	Answer	Mark
3 (a)	<p>Design idea 1</p> <p>Be a bread product with a theme:</p> <ul style="list-style-type: none"> • Evidence of a bread product e.g. named bread(Naan, ciabatta, baguette, croissant, foccacia, pita, pizza, calzone, sour dough, barabreth) (1) • Evidence of a multi cultural theme e.g. identifies the part of the world it originates/replicates / uses ingredients from regional/national/international cuisine (India, Italy, France, Spain, Ireland, Wales) (1) <p>Contain ingredients that have a good texture and flavour:</p> <ul style="list-style-type: none"> • Evidence of one ingredient having a good texture. E.g. ingredient reference to seeds/nuts/fruit/onions or soft/crunchy/crumbly/chewy/moist/dry/smooth (1) • Evidence of one ingredient having a good flavour. E.g. cheese/herbs/spices/onion/garlic/fruit or reference to fruity/sweet/strong flavour/spicy (1) <p>Be filling but low in fat.</p> <ul style="list-style-type: none"> • Evidence of being filling e.g. containing a filling/ a good portion size/to be eaten as an accompaniment to a main course/reference to CHO content: wholemeal flour content/seeds/nuts/vegetables/fruit (1) • Evidence of being low in fat e.g. little or no cheese/low fat cheese/use of fruit, vegetables, herbs to flavour bread (1) <p>Have a shape that is easy to produce by manufacturing methods.</p> <ul style="list-style-type: none"> • Evidence of shape e.g. shaped rolls/buns/plaits/twists/croissants/loaf (1) • Evidence of ease to manufacture e.g. batch production/ Chorleywood bread process/activated dough development//bulk fermentation/ scaling up/industrial cutter/one off production /slicing (1) e.g. made in school <p>Reference to ease of manufacture.</p>	8

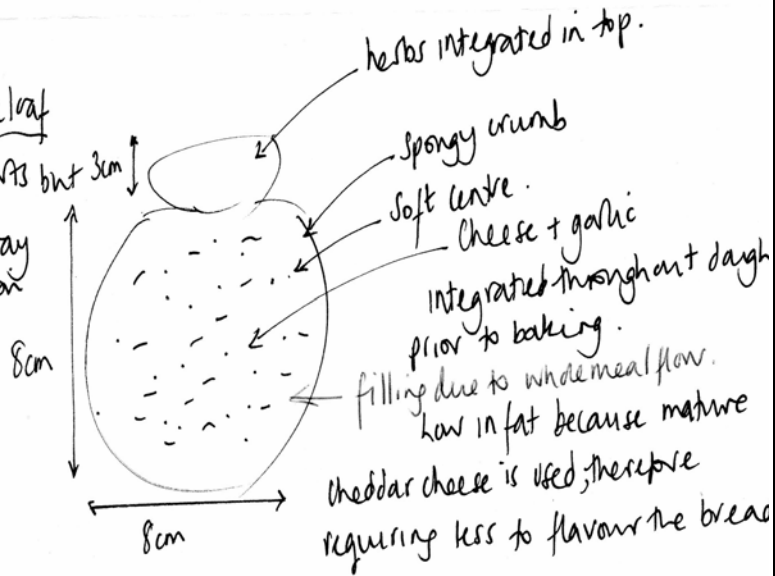
Design 1.

Design 1

Multicultural Cottage loaf

Two separate parts but processed in same way using mass production

garlic
melted cheese



Design idea 2

- One different named bread product.
- One different area of the world.
- One different texture named.
- One different flavour named.
- One different shape.
- One different reason for ease of manufacture.
- One different reason why it is filling.
- One different reason why it is low in fat.

Sundried tomato & herb bread rolls with cheese topping

x = Sundried tomato

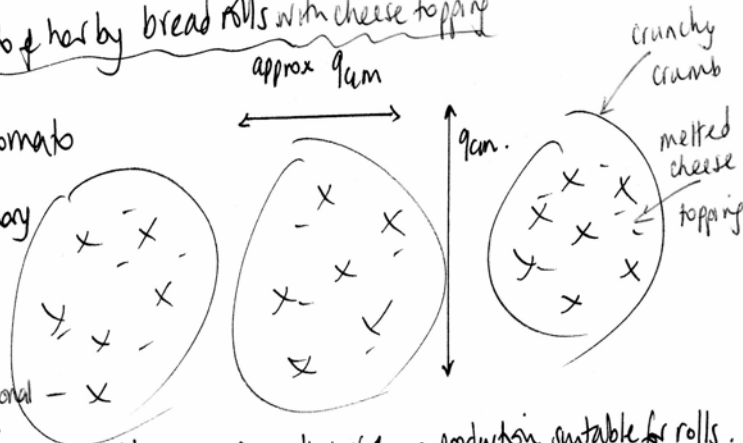
- = Thyme + rosemary herbs

Filling owing to additional savory ingredients.

- Evenly shaped after kneading + proving. High volume production suitable for rolls.
- Low in fat due to flavouring from tomato + herbs.
- Sundried tomato + herbs originate from Mediterranean countries ~ multicultural.
- Excellent flavour from combination of tomato + herbs.
- Good texture due to contrast from crunchy crumb & spongy soft centre. Melted cheese and herbs add flavour and texture.

approx 9cm

9cm.



3 (b) (i)	<p>Evaluation of: good flavour and texture.</p> <p>Positive or negative reasons relating to:</p> <ul style="list-style-type: none"> • Reference made to ingredient that gives flavour. • Reference to ingredient that gives it texture. <p style="text-align: right;">(2x1)</p>	2
3 (b) (ii)	<p>Evaluation of: bread product being filling, but low in fat.</p> <p>Positive or negative reasons relating to:</p> <ul style="list-style-type: none"> • Reference made to being filling/containing carbohydrate/fruit/veg. <p style="text-align: right;">(2x1)</p>	2
3 (b) (iii)	<p>Reference made to the ingredients that make it low in fat.</p> <p>Evaluation of: shape that is easy to produce by manufacturing methods.</p> <p>Positive or negative reasons relating to:</p> <ul style="list-style-type: none"> • Reference made to shape. • Reference made to ease of manufacturing. <p style="text-align: right;">(2x1)</p>	2
Total for question 3		22 Marks

Question Number	Answer	Mark
4(a)(i)	<p>Describe two reasons why it is good to grow your own fruit and vegetables.</p> <ul style="list-style-type: none"> • Fresh /local and knows where your food comes from. • Eat seasonal produce therefore no food miles. • Organic/no chemicals/pesticides/herbicides therefore no side effects to these chemicals/uncertainty over long term effects. • Keeps you healthy because gardening is good physical exercise! • Excellent taste/delicious/higher nutritive value because picked and eaten on the same day. • Less pollution/no food miles <p style="text-align: right;">(2x1) (2x1)</p>	4
4(a)(ii)	<p>Two reasons for eating more fruit and vegetables.</p> <ul style="list-style-type: none"> • High in Vitamin C/A/D/E (1) • High in Fibre/NSP/cellulose (1) • Low in fat (1) • No salt (1) • No processed sugar/natural sugar (1) • Aids digestion (1) • Prevents diverticulitis/cancer/digestive problems/constipation (1) • Five a day guidelines recommended by health experts (1) <p style="text-align: right;">(2x1)</p>	2
4(b)	<p>Explain why fruit and vegetables turn brown when cut.</p> <ul style="list-style-type: none"> • The cell wall is ruptured/torn/broken and exposed to oxygen causing enzymic browning due to oxidation. <p style="text-align: right;">(2x1)</p>	2
4(c)	<p>Three disadvantages of processing foods in industry.</p> <ul style="list-style-type: none"> • Loss of nutritive value (1) • Loss of colour (1) • Loss of flavour (1) • Loss of texture (1) • Chemical/additives required to restore qualities (1) • Expensive (1) <p style="text-align: right;">(3x1)</p>	3
4(d)(i)	<p>Three reasons why additives are used in food products.</p> <ul style="list-style-type: none"> • Enhance flavour/taste (1) • Enhance colour (1) • Nutritional value (1) • Keeping qualities/shelf life/preservative (1) • Alter consistency/texture (1) <p style="text-align: right;">(3x1)</p>	3

<p>4(d) (ii)</p>	<p>Explain the significance of the E.</p> <ul style="list-style-type: none"> E means European - it is on the safe / permitted list of additives because it has undergone testing required by law. <p><i>Any combination of two points.</i></p> <p style="text-align: right;">(2x1)</p>	<p style="text-align: center;">2</p>
<p>4(d) (iii)</p>	<p>Describe one development of modern food materials or processes.</p> <p>Modified starches (1) in sauces/soups and canned products/to prevent separation of ingredients(1) Modified fats(1) replacing saturated fats with plants extracts to reduce cholesterol levels(1) Antioxidants (1) in dairy spreads/to enhance nutritional value (1) GM/Biotechnology (1): high protein foods/modified fats/to increase product range for consumers (1) Fortification of foods (1): omega fats/ enhance nutritional value (1) Prebiotics/probiotics (1) in yoghurts/dairy products/to promote good health (1) Encapsulation of flavours (1) in tinned soups/sauces/to enhance end product (1) Nanotechnology (1) to utilise specific qualities of food atoms/particles (1)</p> <p style="text-align: right;">(2x1)</p>	<p style="text-align: center;">2</p>

<p>4(e) (i)</p>	<p>Explain one cultural and one moral issue that food manufacturers must consider when developing new foods.</p> <p>Cultural</p> <ul style="list-style-type: none"> • Increased travel therefore more demand for foreign/ethnic/fusion foods from around the world • Cultural diversity of population • Regional/national/international cuisine influenced by locality/agriculture/climate/traditions • Vegetarianism therefore consider type of vegetarian(lacto/demi/ovo-lacto) • Religious beliefs/customs and applied dietary restrictions. <p>Moral</p> <ul style="list-style-type: none"> • The expectation of cheap foods may lead to animals being reared in cruel/unhealthy/unnatural conditions to save money. • Rearing conditions/close crowding may lead to widespread disease in animals. • Meeting consumers needs/expectations these can effect safety/health and general well being. • Clearly label food products so that consumers can buy with confidence. • The use of GM foods linked to cross breeding/mutation/unnatural. • Fair trade to promote good farming practice/fair wages. <p><i>Do not credit the same reason for both cultural and moral answers</i></p>	<p>4</p>
<p>Total for question 4</p>		<p>22 Marks</p>
<p>Total for paper</p>		<p>88 Marks</p>

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