



GCSE

Design and Technology: Food Technology

Unit 1 Written Paper
Mark scheme

45451
June 2015

Version V1: Final

Mark schemes are prepared by the Lead Assessment Writer and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation events which all associates participate in and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the students' responses to questions and that every associate understands and applies it in the same correct way. As preparation for standardisation each associate analyses a number of students' scripts: alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, associates encounter unusual answers which have not been raised they are required to refer these to the Lead Assessment Writer.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of students' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

Further copies of this Mark Scheme are available from aqa.org.uk

**2015 DESIGN AND TECHNOLOGY:
FOOD TECHNOLOGY
MARK SCHEME**

This mark scheme is intended as a guide to the type of answer expected but is not intended to be exhaustive or prescriptive. If candidates offer other answers which are equally valid **they must be given full credit**.

Responses are to be assessed according to the **quality** of the work rather than the number of points included, outcomes will closely relate to the assessment objectives and grade descriptors for this specification. The following level descriptors are intended to be a guide when assessing the quality of a candidate's response.

High

Candidates will recall, select and communicate detailed knowledge and show thorough understanding. Responses will include detailed factual explanations and frequent extended answers.

There will be application of relevant knowledge and examples will be given, with responses showing clarity of understanding.

Responses will show precision and accuracy in the ability to plan, review, analyse and evaluate evidence, making reasoned judgements and presenting substantial conclusions.

Work will show accuracy and use a range of specialist terminology correctly.

Intermediate

Candidates will recall, select and communicate sound knowledge and understanding. This will often be presented as a factual list of responses which include some explanation and extended answers.

There will be some application of knowledge and appropriate examples will be given, with responses showing a grasp of most issues. Some aspects may lack clarity.

Responses will show the ability to plan, review, analyse and evaluate evidence and will draw appropriate conclusions.

Work will include the occasional inaccuracy and use some specialist terminology correctly.

Low

Candidates will recall, select and communicate limited knowledge and understanding. This will often be presented as a factual list of responses with little explanation.

There may be some application of basic knowledge and appropriate examples given but responses are likely to show a confused grasp of the issues.

Responses will show basic planning skills, simplistic reviews of evidence and will draw basic conclusions.

Work will include inaccuracies and use generic rather than specialist terminology.

Section A

Question 1

1 Design brief

A local bakery wants to create a new pastry product with a filling.

Design criteria

A successful product will:

- Use a freshly made pastry, not a ready prepared standard component.
- Include two or more ingredients in the filling
- Offer sensory appeal
- Show a creative use of ingredients.

1 (a) (i) Describe **three** ideas for **different** pastry products. Each idea must:

- Use a freshly made pastry, not a ready prepared standard component.
- Include two or more ingredients in the filling

You will be asked to develop one of your ideas in question 1(a) (ii)

Do not repeat the example given below.

Example

Idea: Savoury sausage and onion roll. Uses red onion, Cumberland sausage and diced apple filling. Made into a roll with a homemade pastry.

[3 x 3 marks]

Responses are not expected to be detailed but to follow the example given as a guide to content. The responses below are to be used for each idea.	
The candidate shows good understanding of pastry products and provides full descriptors of product. This will include a range of relevant information	3 marks
The candidate shows some knowledge of the topic but there may be some omissions or repetition of ideas. Product and filling will be identified but further descriptors may be lacking.	2 marks
The candidate shows a very basic knowledge of the topic. It is likely there will be much repetition and generic responses lacking description.	1 mark
No answer worthy of credit.	0 marks

Indicative content:

Candidates are expected to give descriptions of three ideas for pastry products.

***NO credit** given for naming type of pastry here as this is credited in the next part of the question.

Each description should include:

- **A product name or identification of the type of product**
e.g. rolls, pasties, flans, tarts, plaits, twists, cases, shells, turnovers, slices, wraps, pies, horns, boats, tray bakes, vol au vents, jalouise, samosas, profiteroles, eclairs and any other relevant pastry product are acceptable. Sweet or savoury products are acceptable.
- **Details of ingredients used for filling.**
 - Ideas must include two or more named ingredients e.g. cheese, cream, eggs, beef, cod, onions, parsley, blackcurrants
 - Generic terms e.g. meat, fish, fruit, vegetables, herbs, spices not acceptable.
- **Quality of description**
Credit to be given for quality of description. For example:
specific details relating to:
 - methods e.g. diced apple, chopped onion,
 - techniques e.g. ganache, drizzled, glazed, decorated/garnished, fluted, folded.
 - assembly e.g. two circles used as top and bottom of a pie.

*Answers should not be repeated and credit should not be given for repeating items shown in the example.

1 (a) (ii) A local bakery wants to produce a pastry product that meets the following design criteria.

A successful product will:

- use a freshly made pastry, not a ready prepared standard component.
- Include two or more ingredients in the filling.

It must also:

- offer sensory appeal
 - show a creative use of ingredients.

In the box opposite, use detailed annotated sketches to show how **one** of your ideas from 1(a) (i) can be developed to meet the design criteria above.

Do **not** include any packaging details.

[10 marks]

Candidates will indicate which design idea they have chosen to develop further by ticking a box. There are no marks for this.

<p>The candidate has a thorough understanding of designing products and provides clear evidence of meeting all the design criteria. The product designed will show originality, creativity and the annotation of the design ideas is detailed. Communication of design and additional design information will be effective and accurate and detailed at higher levels.</p>	<p>8 - 10 marks</p>
<p>The candidate shows good knowledge but there will be lack of clarity and understanding that design ideas must match given design criteria. Most of the design criteria have been addressed within the annotation, some may be simplistic and lacking in detail. Sketch may be omitted. Creativity and originality may be lacking and the product may be inappropriate. Response will include some specialist terminology</p>	<p>5-7 marks</p>
<p>The candidate shows some knowledge of the topic but there is less clarity of understanding. Sketch may be omitted. Annotation is lacking or may be generic in nature, limited to only one or two design criteria. There may be an inappropriate product chosen. The product will lack originality. Answer will use generic and simplistic terminology.</p>	<p>2-4 marks</p>
<p>Limited response or no answer worthy of credit.</p>	<p>0-1 marks</p>

Indicative content:**Checklist:**

- Design idea should build upon one of the ideas given in previous question and be communicated through an **annotated sketch** to show how the design meets each of the given design criteria.
- Design criteria 1 guidance:
Use a freshly made pastry, not a ready prepared standard component.
Pastry used must be clearly identified/named e.g. shortcrust, choux, filo, rough puff. Any type of pastry is permitted, shortcrust and rough puff are types noted in the specification but candidates can be credited with knowledge of other methods.
- Design criteria 2 guidance:
Include two or more ingredients in the filling.
Does the design show an appropriate product i.e. at least two different foods need to be identified in the filling for credit to be awarded. Foods used may differ from original idea as this is a developed idea.
- Design criteria 3 guidance:
Offer sensory appeal
Annotation will reference how the product will appeal to one or more of the following sensory aspects: Aroma/ smell, taste/flavours, texture/mouth feel, sight/appearance/ colour/shape. Annotation must include qualification e.g. spicy taste from the peppers, smooth textured sauce. For full marks there is an expectation that at least **three** different sensory aspects will be evidenced.
- Design criteria 4 guidance:
Show a creative use of ingredients.
Creativity may be shown through:
 - describing the applied finish, decorative techniques used in product
 - unusual and interesting choice of shapes, colours
 - unusual combination of ingredients for the filling or pastry.
 - combination of methods e.g. shortcrust base, puff pastry top
 - originality of design idea – nothing like it currently on sale
 - any other creative/original approach.
 For full marks it is expected that at least **two** aspects of creativity will be evidenced.
- **Credit** may be given for the **Quality of communication** e.g. Evidence of
 - dimensions
 - cross section,
 - purpose e.g. hand held,
 - nutritional profiling,
 - specific consumer profile,
 - nutritional details of ingredients,
 - production techniques,
 - scaling of ingredients/costs,
 - functions of ingredients identified,
 - portion sizes,
 - specialist equipment,
 - environmental aspects.
 Or other additional design information
A high level quality response will evidence more than one of these aspects.

- 1 (b)** The test kitchen wants to make a batch of the **pastry** that you used in your final design.

Complete the plan below to show how to make the pastry used in your final design.

Include quality control checks that are needed.

[8 marks]

The candidate has a thorough understanding of, and provides evidence of all key aspects of pastry making. Plan includes detailed instructions for making the pastry The candidate provides a detailed workable plan, complete with a range of detailed and relevant quality checks that could successfully be followed by others. Specialist terminology is used appropriately.	6 - 8 marks
The candidate has some knowledge of the key aspects of pastry making but there is less clarity of understanding. Some aspects lack essential detail. Planning will be detailed in some aspects and will include some quality checks. There may be omissions in one of the aspects; some aspects will be stronger than others. Response will include some specialist terminology.	3 - 5 marks
The candidate has a basic but possibly confused grasp of the key aspects of making the chosen pastry Detail is lacking and planning may be generic in nature. May not provide a workable plan Any quality checks are likely to be brief and generic in nature. Answer will use generic and simplistic terminology.	1 - 2 marks
No answer worthy of credit	0 marks

Indicative content:

Marks for correct responses can be awarded within either column.

Answer **MUST** include correct responses in both aspects for the award of full marks.

***Do not** credit cooking, packaging, metal detection or bulk production as the answer is based on a test kitchen not an industrial kitchen.

How to make the pastry	Quality control checks
<ul style="list-style-type: none"> • Clear, logical schedule that includes the stages of making the product as relevant to the chosen pastry. • Correct stages for preparing the basic pastry mixture, 'all in one' method acceptable. • Preparation and assembly of ingredients. • Specialist terminology related to chosen method, e.g. sieving, rubbing in, rolling out, shaping, layering, folding • Chilling of fats. pastry before use. • Finishing techniques e.g. addition of topping, glaze, decoration, sealing of edges. • Specialist equipment identified e.g. baking tins, baking beans if relevant to product, food processor, rolling pins. 	<ul style="list-style-type: none"> • Hygienic environment • Accurate weighing of ingredients. • May credit correct, specific quantities / proportions /types of ingredients if given. • Careful addition of flavours to required tolerance consistency of outcome. • Not over flouring table causing drying out pastry. • Temperature checks e.g. temp for storage ambient 13°C fridge 0 - 4°C appropriate for product. • Designated tolerances for thickness, shapes, size of pastry. • Size/portion control e.g. portions all same size-consistent. • Accuracy in shaping pastry. • Date marks e.g. checking quality of ingredients. • Consistency checks e.g. portion control, use of same size cutters. <p>x Do NOT credit safety points e.g. use of oven gloves.</p>

- 1 (c) A food processor is often used for speed and efficiency when making a batch of pastry.

Explain how food workers can use the food processor safely.

[5 marks]

The candidate shows thorough understanding of personal safety and provides detailed evidence. Response will include a range of correct responses some of which may be extended answers. Specialist terminology is used appropriately.	4 - 5 marks
The candidate shows knowledge and understanding of the topic. Answers may be a mixture of facts and extended answers and include several correct responses. Response will include some specialist terminology.	2 - 3 marks
The candidate shows some knowledge of the topic but there is less clarity of understanding. Response will include simple correct facts or an extended answer showing some understanding. Answer will use generic and simplistic terminology.	1 mark
No answer worthy of credit	0 marks

Indicative content:

To prevent hazards and accidents to themselves food workers must:

- Read instruction manual before use.
 - Follow instruction given /use machine as intended.
 - Only use the machine after training has been given.
 - Maintain personal safety e.g. tie hair back, keep clothes out of the way
 - Control checks on condition of the equipment before use/do not use a damaged machine.
 - Turn off the machine at the mains when not in use.
 - Concentrate when in use/ no more than one person to use at a time.
 - Report any damage to equipment as soon as it happens.
 - Do not overfill machine.
 - Ensure top is correctly locked in place.
 - Ensure machine is on a secure and stable surface when in use.
 - Ensure the electrical device is not near water.
 - Take care when using the sharp blades /keep fingers away from moving blades.
 - Careful washing/cleaning of equipment after use.
 - Critical control checks must be identified in risk assessment e.g. regular PAT testing of equipment in the test kitchen
 - Checking of flexes, plugs etc. in good condition on electric items
 - No trailing wires.
 - Other relevant responses.
- Do **not** accept the wearing of gloves.

1 (d) Explain why bakeries may want to use locally sourced fresh foods.

[4 marks]

Do not accept answers that relate to buying foods from local shops. Responses must link into bakery and fresh foods.	
The candidate shows good understanding of locally sourced fresh foods. Response will include a range of correct responses some of which may be extended answers. Specialist terminology is used appropriately.	3 - 4 marks
The candidate shows some knowledge of the topic but there is less clarity of understanding. Response will include simple correct facts or an extended answer showing some understanding. Answer will use generic and simplistic terminology.	1 - 2 marks
No answer worthy of credit	0 marks

Indicative content:

- Cheaper / do not have to pay extra for packaging / transport / storage
 - Fewer food miles
 - Convenience /more readily/easily available foods
 - Helps local community /
 - Promotes good PR/enables bakery to attract wider target market/ increase sales
 - Benefits local economy
 - More environmentally friendly/ Sustainability of ingredients
 - Lower CO2 emissions / local transportation only needed
 - Fresher than supermarket alternatives
 - Above answers may be extended and gain credit for specific examples e.g. use of flour from local flour mills, wheat fields, farms, farm shops
 - Any other relevant answer.
- Do **not** accept easier, fresher, quicker without some qualification.

TOTAL FOR QUESTION 1 – 36 MARKS

Section B

2 (a) Why is Guideline Daily Amounts (GDA) information useful for consumers?

[2 marks]

Any two of the following answers 1 mark each:

- Allows informed consumer choices/raises awareness
- Supports healthy eating choices
- Consumers can plan and balance their diet
- Knowledge of nutrient content of food choices
- Allows control of specific dietary needs e.g. to support diabetes, weight loss
- Other relevant answers

2 (b) Chose **three** of the nutrients shown on the label of the lasagne product on page 8.

Complete the table below to show the three nutrients you have chosen. For each nutrient explain its function and identify **one** ingredient from the label which contains this nutrient.

[6 marks]

Indicative content:

1 mark for the correct function

1 mark for selection of a correct ingredient as given on the label i.e. lasagne sheets NOT pasta.

Any **three** nutrients may be chosen but no marks for naming the nutrient chosen.

Nutrient NO MARKS	Functions (1 mark x 3)	Ingredient (1 mark x 3)
Saturated fat	Protects and insulates / warmth Energy Satiation	Minced beef Cheese Butter Milk
Carbohydrates	Energy	Lasagne sheets Flour
Protein	Growth repair energy Hormones production	Minced beef Cheese Milk lasagne sheets
Vitamin C	Healthy skin Healing faster Fights infection Absorption of iron Anti oxidant	Tomatoes Onion Red pepper
Calcium	Bones Teeth Healthy muscles Nerves Blood clotting	Milk Cheese Butter Flour Lasagne sheets
Iron	Red blood cells Carrying oxygen around body Component of haemoglobin	Minced beef

2 (c) The nutritional profile of the lasagne needs improving.

2 (c) (i) Give **two** ways to increase the carbohydrate level of the lasagne.

[2 marks]

Any two of the following response 1 mark each

Response should focus on improving the nutritional profile via carbohydrate foods.

i.e. starch, sugar and fibre content as relevant to the lasagne product..

- Addition of extra vegetables
- Specific named vegetables e.g. kidney beans, potatoes, carrots, chick peas
- Increasing proportion
- Addition of a high fibre/wholemeal foods e.g. as a topping/accompaniment
- High fibre food specified e.g. Serving with jacket potatoes/garlic bread/pulses
- Replace beef with protein alternative e.g. Quorn,soya, pulses as this is higher in dietary fibre.
- Other relevant responses

2 (c) (ii) Give **two** ways to decrease the saturated fat level of the lasagne.

[2 marks]

Any two of the following responses 1 mark each

Response should focus on improving the nutritional profile via reduction in saturated fat.

- Reduce amount of minced beef/cheese
- Only use ingredients with a lower fat content
- E.g. Use low fat cheese, lean beef, skimmed milk
- Use ingredients with less than 5% fat
- Use polyunsaturated fat in place of butter
- Use semi /skimmed milk in the sauce
- Ensure no extra fat is used for cooking the mixture
- Dry fry meat
- Replace beef with Quorn as lower in saturated fat
- Other relevant responses.

2 (d) A new lasagne product is being developed to meet the needs of students. Their consumer profile shown below:

Consumer profile

- 18 – 25 year old university students.
- Some follow a vegetarian diet.
- Have a limited income.
- Want affordable, healthy food.

Using the information in the profile, discuss how the lasagne could be developed to meet the needs of the students.

You should make reference to the use of alternative protein foods in your answer.

Quality of Written Communication will be assessed in this question.

[10 marks]

The candidate has excellent knowledge of alternative protein foods and food product development. All aspects of the profile are covered. A range of accurate, reasoned answers and extended answers will be given within a structured discussion Well-structured answer with appropriate use of specialist terminology and few grammatical errors.	8 - 10 marks
The candidate has good knowledge of alternative protein foods and food product development and provides clear evidence of meeting at least three of the profile aspects. A range of correct answers and some extended answers may be given. There will be some explanations and reasons given to support knowledge shown but may have occasional inaccuracies. Well-structured answer with correct use of specialist terminology and some grammatical errors.	5 - 7 marks
This candidate shows some knowledge of alternative protein foods and food product development. Two or more aspects from the profile will be covered using a range of simplistic factual answers and/or some extended correct answers may be given. Poorly structured answer with use of some specialist terminology and grammatical errors.	2 - 4 marks
No answer worthy of credit or a single correct response.	0 - 1 marks

Indicative content:

Key design criteria identified for the lasagne in regards of the consumer profile. Candidates may describe or give additional information on each/some of these

Knowledge of alternative protein foods:

Naming of different alternative protein foods to replace existing ingredients:

- Increasing eggs, milk, peas, beans, lentils, nuts
- Use of complimentary proteins/using LBV proteins together to obtain dietary needs.
- Knowledge of alternative protein foods: TVP, Quorn, Tofu, Soya based products
- Credit may be given for description / detail of alternative protein foods are made from e.g. advantages of, suitability:
- TVP Textured vegetable protein – made from soya beans. rehydrated, will need flavours/stock adding
- Quorn – mycoprotein – fungus based –high in dietary fibre, low in saturated fat –textured to look like meat
- Tofu- made from soya bean curd –needs marinating- often used with TVP – subtle flavour – could be used to replace cheese in lasagne –low calorie, low fat, high in iron and calcium

Vegetarian needs may include cultural preferences

- Shows awareness of different types of vegetarians e.g. vegans

Reasons for vegetarianism e.g. cultural

- Muslims: restrictions on use of pork, need for Halal meat production methods.
- Jewish culture: separation of meat and dairy, not eating pork, use of kosher ingredients
- Hindu: acknowledge that many of the consumers will not eat animal products. Many following Hinduism will be vegetarians /some strict vegetarian. Prohibited products will be meat particularly beef and pork. Beef is from the cow which is sacred in Hinduism

- Some prohibit alcohol, onions, garlic and red coloured foods such as tomatoes, red lentils.
- Other specific cultures/religious beliefs' linked to foods may also be credited.
- Ethical reason why vegetarian farming, cruelty to animals etc, dislike sensory attributes, allergies
- Costs of meat based food products restrictive on limited budget

Developments discussed may include:

- removal of specified foods/meats, (onions, tomatoes and garlic for some Hindus)
- Ideas for replacing meats with alternative proteins TVP, Quorn, Tofu, beans.
- May refer to high biological proteins and low biological proteins (1st or 2nd class)
- Use of pulses, vegetables dairy foods e.g. milks, cheeses etc to add protein.

Inexpensive/limited income:

- product needed as on student grants –alternative proteins TVP etc are generally cheaper therefore product will be cheaper

Wish for a **healthy food** choice:

- most alternative proteins are also low in fat content making a healthier choice.
- May give specific details of nutrient content related to healthy food choices.
- May refer to specific nutritional values of dish e.g. energy
- Specific healthy option responses may be credited e.g. use of low fat foods

Other relevant needs of students that may be credited:

- possible lack of cooking/storing facilities
- product suitable for microwave, freezing for later
- lack of cooking skills therefore need for this product to be available
- Young adult tastes- need for nutritious food. University students will be intelligent and understand need for nutritious food.

TOTAL FOR QUESTION 2 – 22 MARKS

3 (a) (i) For **each** of the following name one stage where it may be used.

[3 marks]

3 x 1 mark for one correct answer in each section.

General design criteria

Stage 1 or 2

A product specification

Stage 3 or 4

A manufacturing specification

Stage 4 or 5

3 (a) (ii) Describe **two** types of research that are useful at **Stage 1**.

[2 x 3 marks]

The candidate shows understanding of types of research will name and give an extended description or two different aspects of the research.	2 - 3 marks
The candidate has incorrect or basic answer. Research type will be named but there is minimal description which may only include a simplistic answer.	0 - 1 marks

Indicative content:

Research at stage 1 should focus on initial research that may take place at the very beginning of the design process. It may include descriptions of any of the following:

Product analysis - of existing products. Product disassembly to ascertain methods of making, ingredients used etc. Taste testing of existing products.

Market research - what is already on the market. Search local business products. Ensure gap in market and market trends. Is product intended viable? Internet searches.

Comparative shop –supermarket research/ identifying potential similar products already on sale for cost, portion size,

Consumer research – identifying consumer profile, surveys researching the needs of consumers and potential customers. Does product meet the needs? Questionnaires and interviews with customers.

Descriptions may include details of steps to take, aims, objectives, recording and evaluation of results and findings.

- 3 (b)** Discuss the advantages of using a computer programme to analyse the nutritional value of the cheesecake at **Stage 4**.

[4 marks]

The candidate shows thorough understanding of the topic and provides detailed evidence. Response will include a a range of correct responses some of which will be extended answers. Specialist terminology is used appropriately.	4 marks
The candidate shows knowledge and understanding of the topic. Answers may be a mixture of facts and extended answers and include several correct responses. Response may include some specialist terminology.	3 marks
The candidate shows some knowledge of the topic but there is less clarity of understanding. Response will include simple correct facts or an extended answer showing some understanding. Answer will use generic and simplistic terminology.	2 marks
No answer worthy of credit or a single correct fact given.	0 - 1 marks

Indicative content:

Advantages:

- Saves time
- Easier than human working this out
- Large amount of information is available for use
- Accuracy of calculations
- Reduction of human error
- Allows easier comparison to other products.
- Can record results
- Can adapt results / if recipe changes
- Can give a professional label for product
- Can identify any nutritional changes needed in good time before final manufacturing spec finalised.

- 3 (c)** During prototype development, the test kitchen uses 500g of raspberries to make a smooth fruit puree for a cheesecake topping.
Two items of equipment (*sieve and electric hand blender -shown on paper*) could be used when making the puree.
Describe how workers could set up a fair test to help them decide which item of equipment is best to use.

[6 marks]

The candidate shows thorough understanding of the topic and provides detailed evidence. Response will include a range of correct responses most of which will be extended answers and show clarity of organisation, reasoning, analysis and evaluation details will be included. Both fair testing and use of equipment will be clearly evidenced. Specialist terminology is used appropriately.	5 – 6 marks
The candidate shows knowledge and understanding of the topic and the expected outcomes. Answers may be a mixture of facts and extended answers and include several correct responses. Some aspects e.g., recording or evaluation of results may be omitted. Response may only focus on fair testing or equipment useage. Response may include some specialist terminology.	3 – 4 marks
The candidate shows some knowledge of the topic but there is less clarity of understanding. Response will include simple correct facts or an extended answer showing some understanding. Answer will use generic and simplistic terminology.	1 – 2 marks
No answer worthy of credit.	0 marks

Indicative content:

For full marks there should be a clear focus on both fair testing and use of equipment

Organisation of fair test activity:

- Comparison testing of equipment. Hand v electric
- Have both items of equipment carry out same task
- Test both when making the puree...keep records of efficiency
- Use small portions of ingredients for fruit puree
- Have control samples
- Use of white containers for the puree
- Cleansing of palette between any taste testing
- Label outcomes of testing
- Non biased test panels for sensory testing of outcome
- Number of testers
- Testing outcomes for required viscosity/smoothness
- Consistency of outcomes may be considered e.g. effectiveness in removing of seeds
- Costing hand v fuel costs
- Ease of use
- Time taken
- Names of any testing carried out e.g. ranking, rating
- Results recorded and used
- Possible use of computers to record outcomes
- Most efficient outcome selected to move forward
- Item producing smoothest puree is best
- Other relevant and correct answers

TOTAL FOR QUESTION 3 – 19 MARKS

4 (a) The following are questions asked by a new worker.

In the boxes below state what advice must be given to the new worker to ensure they follow the correct hygiene procedures when working with food.

[3 x 2 marks]

Marking guidance to apply to each section	3 x 2marks
The candidate shows knowledge and understanding of the topic. Answers may be a mixture of facts and extended answers and include two or three correct responses.	2 marks
The candidate shows some knowledge of the topic but there is less clarity of understanding. Response will include one simple correct fact	1 mark
No answer worthy of credit	0 marks

Indicative content:

Why can't I wear my own clothes?

- Outdoor clothes may not be clean enough/ Contain dirt/bacteria,
- Pockets may contain used hankies,
- Cause of contamination/bacteria/potential contamination of food.
- Food clothing is specifically designed for cleanliness/ usually stay in workplace
- Food clothing specifically designed for coverage and hygienic laundering.
- Responsibility of employer to provide appropriate clothing for workplace not for worker to provide own.
- May give example of personal protective wear provided by employer e.g. hats, hairnets, aprons
- contamination could close down company /effect fines from EHO

What must I do if I feel ill?

- Legal responsibility to report.
- Report illness to manager immediately
- Potential contamination of food/other workers/spread of contamination..
- Not attend work/go home
- If sneezing etc cover mouth every time
- Wash hands thoroughly after

What must I do if I cut myself?

- Cover the cuts with a blue plaster
- Visibility of blue plaster - it can be seen if it falls into the food.
- Seek medical help/first aid. i.e. Wash/cleanse wound, stem flow of blood
- Discard any contaminated food
- Report to supervisor
- Fill in accident form if injured at work

- 4 (b) (i) Complete the table below to show **one** possible cause for each type of contamination when making a chicken curry and rice product.

[3 marks]

Any **three** correct answers, one from each section.

Type of contamination	Cause of contamination
Physical contamination	<ul style="list-style-type: none"> • Chicken bones, cartilage • Flies, insects • Bits of plastic packaging hair, machinery/equipment or incorrect covering of food
Chemical contamination	<ul style="list-style-type: none"> • Cleaning liquids from the kitchen, e.g. washing up liquid, bleach perfumes and sanitizers. <p>Do NOT accept antibacterial sprays.</p>
Biological contamination	<ul style="list-style-type: none"> • Micro-organisms entering food e.g. cooked rice • Named micro-organism e.g. salmonella • Incorrect storage temperatures/defrosting/kept at room temperature/bacteria not killed • Incorrect cooking times/bacteria not killed during cooking

- 4 (b) (ii) Name **three** symptoms of food poisoning.

[3 marks]

Any **three** are acceptable.

- Diarrhoea
- Vomiting/sickness/nausea
- Headaches
- Stomach pains
- High temperatures/fever
- Sweating
- Dizziness

- 4 (b) (iii) Explain how to prevent food poisoning when reheating a frozen chicken curry and rice ready meal product.

[4 marks]

The candidate has a good understanding of preventing food poisoning covering several key aspects related to reheating the product. Response will include relevant specialist terminology and key temperatures.	3 - 4 marks
The candidate shows some knowledge of the topic but there is less clarity of understanding. Response will include simple correct facts or an extended answer showing some understanding. Answer will use generic and simplistic terminology.	1 - 2 marks
No answer worthy of credit.	0 marks

Indicative content:

- Micro-organisms are controlled by reheating to correct temperature
- Use a food probe
- Identifies that probes checks on the temperature of the product
- Checks that food temperature is 72C and above.
- 72C and above for minimum of 2 minutes
- Where bacteria growth will be halted
- Reheating instructions on package are followed.
- Check whether reheated from frozen or if thawing is recommended.
- Check wattage / reheating times of microwave if used.
- Allow standing time if microwave used.
- Do not reheat more than once as rice and chicken are high risk foods.
- Make sure product is within date / Check use by date

4 (c) (i) Give **four** reasons why manufacturers package food products.

[4 marks]

Any **four** are acceptable

One word answers also acceptable e.g. preserve, protect, inform.

- Protect from bacterial damage
- Protect from physical contamination/ damage
- Protects from environmental damage i.e. atmospheric changes, light, humidity
- Inform consumers as room for labelling.
- Allows branding and gives identify to product.
- Extend shelf life
- Attract consumers
- Prevent tampering
- Contain/stop spillage
- easier to transport
- Easier to store/ uniform shapes and sizes.
- Shrink wrapping allows for smaller more compact sizes for misshapen foods.
- Other relevant answers

4 (c) (ii) Describe **different** packaging materials that are suitable for a frozen chicken curry and rice ready meal product.

Give reasons for your choice.

[4 marks]

The candidate shows thorough understanding of the topic and provides detailed evidence. Response will include several correct responses most of which will be extended answers and show at least two different materials. Specialist terminology is used appropriately.	3 - 4 marks
The candidate shows some knowledge of the topic but there is less clarity of understanding. Response will include simple correct facts showing some understanding. Answer will use generic and simplistic terminology.	1 - 2 marks
No answer worthy of credit.	0 marks

Indicative content:

Response should indicate **named** materials with appropriate reasons for use.

Material: tinfoil /aluminium foil (**NOT** generic term metal)

Reasons:

- Good for preserving the chicken curry long term
- Strong
- Moulded to different shapes
- Lightweight
- Impermeable to contamination
- Can be recycled
- Can be heat treated
- Retains shape protects shape of food.
- Available in different thicknesses.
- Withstands extremes in temperatures e.g. freezing, boiling

Material: Paperboard (**NOT** generic term cardboard)

Reasons:

- Used for outer sleeve
- Printed on easily
- Various thickness
- Moulded to different shapes
- Can be laminated/coated
- Lightweight
- Can be recycled
- Cheap
- Biodegradable

Material: Thermoplastics/PP polypropylene/PS polystyrene/*cling film will be accepted.
(**NOT** generic term plastics)

Reasons for use:

- Used for main container for curry sauce/rice
- Can be moulded into range of shapes
- Lightweight
- Cheap
- Easily printed on
- Water resistant
- Can be rigid or flexible
- PP used for wrap for ready meals
- PS used for trays/containers, expanded and shaped
- PS Poor conductor of heat good for takeaway
- Sealed under pressure and heat treatments.
- Recyclable to reduce costs and save natural resources.

Not acceptable : glass, tin cans, paper.

Credit may be given for responses for identifying the part of the packaging where materials may be used, e.g. plastics for the curry sauce and paperboard for the outside secondary packaging.

TOTAL FOR QUESTION 4 – 24 MARKS

5 (a) The ingredients in the table below are used in the test kitchen.

State which ingredients are acid and which ingredients are alkali.

[3 marks]

1 mark awarded for each of the correct answers given.

Bicarbonate of soda	Lemon juice	Vinegar
Alkali	Acid	Acid

5 (b) Give **one** reason why:

5 (b) (i) bicarbonate of soda is used in ginger biscuits.

[1 mark]

Any **one** correct reason:

- Raising agent
- Releases carbon dioxide when heated
- Co₂ bubbles expand on heating and make it rise slightly
- Strong flavour of bicarbonate is often disguised by addition of chocolate, spices or ginger
- Produces cracked appearance on top of biscuits.

5 (b) (ii) lemon juice is used in a fruit salad.

[1 mark]

Any **one** correct reason:

- Prevents browning/maintains colour of fruit
- Stops enzymic browning
- Stops oxidation (i.e. prevents surface of fruit from reacting with oxygen in the air)
- Adds flavour

5 (b) (iii) vinegar is used in marinades for barbequed meats.

[1 mark]

Any **one** correct reason:

- Tenderises meat
- Softer texture
- Adds strong flavour to meat
- Breaks down protein strands

5 (c) Explain why manufacturers use additives in their food products.

[5 marks]

<p>The candidate shows thorough understanding of the topic and provides detailed evidence. Response will include several correct responses most of which will be extended answers with relevant examples. Specialist terminology is used appropriately.</p>	4 – 5 marks
<p>The candidate shows knowledge and understanding of the topic and the expected outcomes. Answers may be a mixture of correct facts and extended answers. May only include a list of types of preservatives but without descriptions. Response may include some specialist terminology.</p>	2 – 3 marks
<p>The candidate shows some knowledge of the topic but there is less clarity of understanding. Response will include simple correct facts or an extended answer showing some understanding. Answer will use generic and simplistic terminology or provides an answer that is not worthy of credit.</p>	0 - 1 mark

Indicative content:

Explanations are expected not just a list of types of additives.

Maximum of 3 marks if only a list given with no description of use.

- Improve sensory attributes – flavour, colour etc
- Improve structure/ stabilise
- Add nutritional value
- Extend shelf life/preserve e.g. vinegar with pickles
- Add colour e.g. E102,
- Add flavour/taste e.g. caramel
- Emulsification e.g. lecithin in mayonnaise/ stability of food
- Setting agents e.g. gelatine
- Raising agents e.g. baking powder to help product rise/airy texture
- Add anti-oxidants
- May identify difference between natural and synthetic additives.
- May give examples of the above as extended answers.
- Other relevant answers

TOTAL FOR QUESTION 5 – 11 MARKS

6 (a) What are the advantages of Genetically Modified (GM) foods?

[4 marks]

The candidate shows good understanding of the topic and provides detailed advantages. Response will include several correct responses most of which will be extended answers. Specialist terminology is used appropriately.	3 - 4 marks
The candidate shows some knowledge of the advantages but there is less clarity of understanding. Response will include two simple correct facts or an extended answer showing some understanding Answer will use generic or simplistic terminology.	1 - 2 marks
No answer worthy of credit.	0 marks

Indicative content:

***response should not repeat wording from text but show understanding of terms used.**

- Increases food supplies/ greater yield /Without using more land mass
- Less wastage GM so crops last longer
- Increases nutritional quality of food /e.g. Carotene (Vitamin A enriched wild rice, protein enhanced soya
- Can help to overcome malnutrition in parts of the world/Prevents starvation Reduction of sicknesses and illnesses, as GM crops are more nutritious. Vitamins and minerals can be provided to children and to people, where they were inaccessible before (i.e.: the world's poorest and/or most secluded areas).
- Improve /make crops better e.g. resistant to disease
- Less pesticide is needed to be used due to insect pest resistant plants. E.g. plants become resistant to fungi and moulds, therefore fewer costs to farmers
- More environmentally friendly e.g. less deforestation needed to feed the worlds growing population
- Farmers have more income, which they could spend on such things as, for example, the education of their children.
- Economically friendly. Decrease in food prices due to lower costs and higher yield. As people in poor countries spend over half of their income on food alone, lower food prices mean an automatic reduction of poverty.
- Rigorous testing makes GMOs much safer than organic (the traditional) crops. If the slightest chance of health hazard, a GM is NOT allowed to enter the markets.
- Creation of "super foods" due to better knowledge. Super foods are types of food that are cheap to produce, grow fast in large quantities, highly nutritious.
- Developments of new kinds of crops that can be grown at extreme climates, for example, dry or freezing environments (like deserts). For example, scientist developed a type of tomato that grows in salty soil.
- As more crops (plants) can be grown and at more places, this decreases global warming through the increase of oxygen in the environment, decreasing the proportion of carbon dioxide. .
- Decrease of maturation time of the plants, so they can be harvested sooner and more often during the year. Quicker to grow.
- Enhancement of the size /smell of food.
- Less processing needed in factories. Less factory additives needed.
- Reduced energy needs to produce GM crops. Less machinery requirements. Due to reduced costs of production, prices can be further reduced

- 6 (b)** Why are some food manufacturers and consumers concerned about the use of Genetically Modified (GM) foods?

[4 marks]

The candidate shows good understanding of the topic and provides detailed information about concerns. Response will include several correct responses most of which will be extended answers. Specialist terminology is used appropriately.	3 - 4 marks
The candidate shows some knowledge of the concerns but there is less clarity of understanding. Response will include simple correct facts or an extended answer showing some understanding Answer will use generic or simplistic terminology.	1 - 2 marks
No answer worthy of credit.	0 marks

Indicative content:

Concerns of using GM foods

- Scientists fear unknown side effects
- Some GM foods thought to increase allergens e.g. nuts modified into soya beans
- More research needed into long term effects
- Taste of GMs are not as good or "natural".
- Concern that GM food is not safe to eat
- Currently there are no restrictions on GM foods in relation to religious restrictions but much discussion over this is taking place.
- Current research also suggests there may be a link between GM food intake and behavioural problems e.g ADHD and some health problems.

- Spread of new, more resistant "super weeds and pest
- Crops grown near GM could be affected
- Harm to other organisms. / For example genes and their effect included in a crop may turn out to be poisonous to insects (monarch butterfly poisoned by GM corns).
- Fewer weeds may affect biodiversity as many animal and other wildlife rely on these plants for food and shelter.

- Some nations refuse to trade with GM products.
- Only small number of GM products on sale.
- Strict and very complex standards that GMs have to fully meet.
- Possible creation of new kinds of weapons; genetic food and beverage weapons.
- GM organisms can be expensive.
- Additional costs of labelling. This might increase costs of foods.

- Any other relevant answer.

TOTAL FOR QUESTION 6 – 8 MARKS