

Mark Scheme (Results)

Summer 2007

GCSE

GCSE Engineering & Manufacturing (5318/02)

Food and Drink, Biological and Chemical (5318/02)

SECTION A

<i>Question</i>			<i>Expected answers</i>	<i>Mark allocation</i>	
5318_02_Q01a			Tick the two boxes below where the products belong to the food and drink sector.		
1	(a)		<ul style="list-style-type: none"> • Soy Sauce (1) • Carbonated Water (1) <p><i>If three boxes ticked max marks = 1 mark. If 4 boxes or more ticked no marks.</i></p>	2x1	(2)
5318_02_Q01b			Tick the two boxes below where the products belong to the biological and chemical sector		
1	(b)		<ul style="list-style-type: none"> • De-icer (1) • Dried Yeast (1) <p><i>If three boxes ticked max marks = 1 mark. If 4 boxes or more ticked no marks.</i></p>	2x1	(2)
(Total mark 4)					

<i>Question</i>			<i>Expected answers</i>	<i>Mark allocation</i>	
5318_02_Q02a1			Naming each piece of equipment		
2	(a)	1	<ul style="list-style-type: none"> • Microwave Oven (1) • Microwave (1) • Combination microwave (1) • Combination microwave and grill (1) • Named microwave e.g. Panasonic (1) • (accept any answer that makes reference to a microwave) <p><i>Do not accept;</i></p> <ul style="list-style-type: none"> • <i>Oven</i> • <i>Quick oven</i> • <i>Fast oven</i> • <i>Defroster</i> • <i>Cooker</i> 	1x1	(1)

Question			Expected answers	Mark allocation	
5318_02_Q02b1			Explaining what each piece of equipment is used for:		
2	(b)	1	<p>An answer that makes reference to TWO of the following points:</p> <ul style="list-style-type: none"> To cook foods To reheat foods To defrost foods To prepare toppings/icings/filling etc Any other appropriate answer <p><i>e.g. to defrost and cook a food or ingredient</i></p> <ul style="list-style-type: none"> To melt chocolate To warm liquid e.g. milk To boil liquids e.g. water To warm fondant To make / heat syrups Any other appropriate answer <p><i>If the equipment named in part 2(a) is incorrect, no marks for part 2(a), but if it is a piece of equipment from food sector or no answer allow follow though, for a correct answer to 2(b) which relates to that given in part 2(a), up to 2 mark.</i></p> <p><i>Do not accept:</i></p> <ul style="list-style-type: none"> Refrigerator Fridge Chiller Ice cream fridge Box 	2x1	(2)
5318_02_Q02a2			Naming each piece of equipment		
2	(a)	2	<ul style="list-style-type: none"> Freezer (1) Chest Freezer (1) Freezer box (1) Freezer cabinet (1) Ice box (1) 	1x1	(1)

Question			Expected answers	Mark allocation	
5318_02_Q02b2			Explaining what each piece of equipment is used for		
2	(b)	2	<p>An answer that makes reference to TWO of the following points:</p> <ul style="list-style-type: none"> • To store frozen prepared food • To store frozen ingredients • To freeze fresh foods • To store over production • To hold stock • To freeze food • To freeze ingredients • To make ice • To store ice • To freeze liquids e.g. gravy • To store liquids e.g. soups • Any other appropriate answer <p><i>E.g. to freeze soup and keep in stock</i></p> <p><i>If the equipment named in part 2(a) is incorrect, no marks for part (a), but if it is piece of equipment from the food sector or no answer allow follow though, for a correct answer to 2(b) which relates to that given in part 2(a), up to 2 mark.</i></p> <p><i>Allow use of named foods, ingredients, liquids e.g. fish, vegetable, chilli, curry, pea, carrots, soups</i></p>	2x1	(2)
(Total mark 6)					

Question	Expected answers		Mark allocation														
5318_02_Q03	Draw a straight line to link each term listed below to a key area. Key terms linked to a key area																
3		<p><i>No mark awarded where 2 or more lines are drawn from a term. Lines do not have to be straight but term and key area must be clearly linked.</i></p> <table border="0"> <thead> <tr> <th>Term</th> <th>Key area</th> </tr> </thead> <tbody> <tr> <td>Computer Integrated Manufacturing (CIM)</td> <td>Information & Communications Technology (ICT)</td> </tr> <tr> <td>Modified starches</td> <td>Modern materials</td> </tr> <tr> <td>Process control</td> <td>Control technology</td> </tr> <tr> <td>Gelling agents</td> <td>Information & Communications Technology (ICT)</td> </tr> <tr> <td>Internet sites</td> <td>Modern materials</td> </tr> <tr> <td>Databases</td> <td>Control technology</td> </tr> </tbody> </table>	Term	Key area	Computer Integrated Manufacturing (CIM)	Information & Communications Technology (ICT)	Modified starches	Modern materials	Process control	Control technology	Gelling agents	Information & Communications Technology (ICT)	Internet sites	Modern materials	Databases	Control technology	<p>6x1</p> <p>(6)</p>
Term	Key area																
Computer Integrated Manufacturing (CIM)	Information & Communications Technology (ICT)																
Modified starches	Modern materials																
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Gelling agents	Information & Communications Technology (ICT)																
Internet sites	Modern materials																
Databases	Control technology																
(Total mark 6)																	

Question			Expected answers	Mark allocation	
5318_02_Q04					
Name one other product from this sector, apart from digestive biscuits, that utilises in its manufacture control technology and modern materials.					
4	(a)	i	<p>Appropriate product such as e.g.</p> <ul style="list-style-type: none"> • Bread (1) • Cake (1) • Soups (1) • Ice cream (1) • Quiches (1) • Soft drinks e.g. pop (1) • Chocolate (1) • Ready meals i.e. curry, pasta (1) • Yoghurt (1) • Accept named / brand name of a spelling product e.g. Pepsi, Ben and jerry's mullier <p><i>This list is not exhaustive; accept any product that contains Food and drink or association with the sector.</i></p>	1x1	(1)
Explain how the product can be used.					
4	(a)	ii	<p>Appropriate explanation of what the product does, may include reference to features and function</p> <ul style="list-style-type: none"> • Bread - to make sandwiches (1) to make crotons (1) to supplement restaurant meals (1) to eat / consume (1) to provide energy • Cake - to eat (1) to make trifles (1) to make desserts (1) to provide energy (1) • Soups - to drink / consume (1) to provided energy (1) to be a starter in restaurant (1) <p><i>If product given in 4(a)(i) is not from this sector but is from one of the other biological and chemical sectors then allow follow through up to one mark. No answer to 4(a)(i) no marks for 4(a)(ii)</i></p>	2x1	(2)

Question		Expected answers		Mark allocation	
State one stage in the manufacture of the product you named in 4(a)(i) where control technology is used					
4	(b)	i	<ul style="list-style-type: none"> production planning (1) materials - supply and control (1) processing/production (1) assembly / finishing (1) packaging/dispatch (1) Any appropriate manufacturing operation i.e. weighing ingredients, mixing, depositing, dividing, baking, cooking, cooling, packaging Dispatch <p><i>If product given in 4(a)(i) is not from this sector but is from one of the other engineering manufacturing sectors then allow follow through.</i> <i>No answer to 4(a)(i) no marks for 4(a)(ii)</i> <i>Accept a process that is within any of the stages (e.g. Blending, filling, mixing, packaging, making) must be appropriate to the product stated in 4(a)(i).</i></p>	1x1	(1)

Question		Expected answers			Mark allocation
Explain one advantage to the manufacturer of using control technology at this stage.					
4	(b)	ii	<p>One mark for identifying advantage One mark for why</p> <p>Appropriate advantage to the manufacturer e.g.</p> <p>production planning, materials - supply and control, processing/production, assembly/finishing, packaging/dispatch</p> <p>Production planning</p> <ul style="list-style-type: none"> • speed (1) - faster than human application (1) <p>materials - supply and control</p> <ul style="list-style-type: none"> • cost control (1) - by less waste/faulty parts (1) • waste control (1) - by monitoring processes and quality control of processes (1) <p>processing/production</p> <ul style="list-style-type: none"> • energy conservation (1) - by control of energy into process (1) • waste control (1) - by monitoring processes and quality control of processes(1) • competitiveness (1) - faster rates of production (1) • product consistency (1) - by control of processes (1) • cost control (1) - by less waste/faulty parts (1) • efficiency (1) - by less waste/faulty parts (1) • speed (1) - faster than human application (1) <p>assembly/finishing</p> <ul style="list-style-type: none"> • energy conservation (1) - by control of energy into process (1) • waste control (1) - by monitoring processes and quality control of processes(1) • product consistency (1) - by control of processes (1) • cost control (1) - by less waste/faulty parts (1) • efficiency (1) - by less waste/faulty parts (1) • speed (1) - faster than human application (1) <p>packaging/dispatch</p> <ul style="list-style-type: none"> • packaging consistency (1) - by control of processes (1) • cost control (1) - by less waste/faulty parts (1) • efficiency (1) - by less waste/faulty parts (1) • speed (1) - faster than human application (1) • energy conservation (1) - by control of energy into process (1) • waste control (1) - by monitoring processes and quality control of processes (1) <p><i>Low response (1) or two low responses (2) or detailed response (2)</i> <i>If the answer in part 4b(i) is a Manufacturing stage allow follow through up to 2 marks.</i> <i>No answer to 4(b)(i) no marks for 4(b)(ii)</i></p>	1x1 1x1	(2)

Question			Expected answers	Mark allocation	
State one modern material used in the manufacture of the product you named in 4(a)(i)					
4	(c)	i	<ul style="list-style-type: none"> • emulsifiers (1) • stabilizers (1) • chemical aerators (1) • preservatives (1) • antioxidants (1) • colorants (1) • flavours (1) • inclusions (1) • omega 3 (1) • enzymes (1) • improvers e.g. dough (1) • Packaging materials, e.g. film, foils, etc. • Other appropriate materials - a material currently used for the given application. <p><i>If product given in 4(a)(i) is not from this sector but is from one of the other biological and chemical sectors then allow follow through.</i></p> <p><i>No answer to 4(a)(i) no marks for 4(c)(i)</i></p> <p><i>Accept 'brand names of specific materials'</i></p>	1x1	(1)

Question		Expected answers		Mark allocation	
Describe how this modern material improves the characteristics of the product.					
4	(c)	ii	<p>One mark for identifying improvement One mark for how</p> <ul style="list-style-type: none"> • size - increase (1) / decrease (1) / volume (1) • weight - heavier (1) / lighter (1) • density - aerated (1) / lighter (1) / softer (1) / volume (1) • flavour - stronger (1) / natural (1) / sweeter (1) • texture - open (1) / closes (1) / softer (1) / chewy (1) • colour - brighter (1) / natural (1) • shelf life - longer (1) preserves (1) • softness - tender (1) / easy to chew (1) • hardness - tough (1) / brittle (1) / crunchy (1) • any other appropriate functional, aesthetic, eating / drinking, characteristic that relates to the improvement of the product <p><i>If answer in part 4(ai) is inappropriate but the material given in 4(ci) is appropriate allow follow through up to 2 marks. If no answer is given in part 4(ai) but the answer to part 4(cii) relates to the material stated in part 4(ci) allow follow through up to 1 mark. If no answer or incorrect answer given in part 4(ci) no marks awarded for 4(c ii).</i></p>	1x1 1x1	(2)
(Total mark 9)					

Question			Expected answers	Mark allocation	
5318_02_Q05a					
Give one example of where Computer aided manufacture (CAM) is used by a manufacturer.					
5	(a)	i	<ul style="list-style-type: none"> materials supply / purchasing (generating orders) materials control (MRP1, automatic material issuing) stages in production / processing (weighing / dispensary, mixing, blending, baking, cooking, cooling) process control (data logging) packaging (automatic labelling) storage (automated warehouse) distribution (automatic order picking) 	1x1	(1)
Explain the benefits to the manufacturer of using Computer-aided manufacture (CAM) relating to the example given in 5(a)(i)					
5	(a)	ii	<p>One mark for identifying the benefit One mark for how</p> <ul style="list-style-type: none"> reduced ordering times (1) - automatic monitoring (1) improve quality / accuracy (1) - control of processes (1) reduced wastage (1) - optimise production methods improved efficiency (1) - faster / quicker throughput (1) better process control (1) - in process monitoring (1) reduced labour (1) - automated processes (1) lower costs (1) - reduced wastage/faster/continuous production (1) safer processing (1) less manual input (1) cleaner (1) more hygienic (1) <p><i>Low response (1) or two low responses (2) or detailed response (2)</i> <i>If answer in part 5(ai) is inappropriate allow follow through up to 2 marks. If no answer given in part 5(ai) allow follow though up to 1 mark.</i></p> <p><i>Do not accept 'easier' without explanation</i></p>	1x1 1x1	(2)

Question			Expected answers	Mark allocation	
5318_02_Q05b					
Give one example of how Computer-aided design (CAD) is used by a manufacturer					
5	(b)	i	<ul style="list-style-type: none"> to create virtual products / drawings / 2 or 3D designs modelling show ideas show new product concepts modify existing products <p><i>Do not accept 'software packages' without explanation e.g. 2D design software / package</i></p>	1x1	(1)
Explain the benefits to the manufacturer of using Compute-aided design (CAD) relating to the example given in 5(b)(i)					
5	(b)	ii	<p>One mark for identifying benefit One mark for how</p> <ul style="list-style-type: none"> conversion from 2D to 3D (1) for modelling (1) quicker development time (1) - through simulation (1) easier to communicate i.e. ICT (1) - transfer of data (1) easy to make modifications / edit / change (1) - no paper hard copies (1) / computer data (1) lower initial development costs (1) - concurrent design processes (1) easy storage of data/information and retrieval (1) - interaction with databases (1) accurately drawn (1) - entry of accurate data on size co-ordinates (1) <p><i>Low response (1) or two low responses (2) or detailed response (2)</i> <i>Two low responses one mark e.g. its quicker and more accurate - only one mark</i> <i>If answer in part 5(b)(i) is inappropriate allow follow through up to 2 marks. If no answer given in part 5(b) (i) allow follow though up to 1 mark.</i></p> <p><i>If any answer in 5(b)(i) is in appropriate follow through up to 2 marks.</i></p> <p><i>Do not accept 'easier' without explanation</i></p>	1x1 1x1	(2)

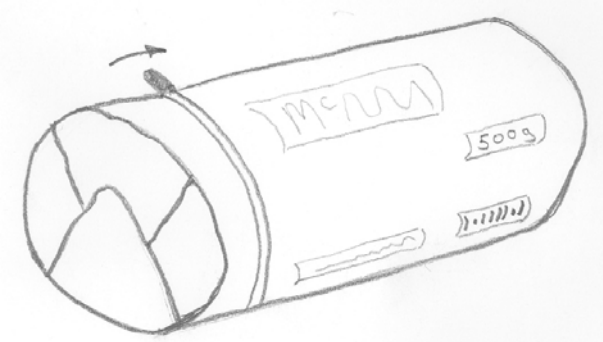
<i>Question</i>		<i>Expected answers</i>	<i>Mark allocation</i>	
5318_02_Q05c		Explain one benefit to the retailer of the manufacturer using Computer-aided manufacture (CAM)		
5	(c)	<p>One mark for identifying benefit One mark for how</p> <ul style="list-style-type: none"> • less returns (1) - more consistent products (1) • lower purchase price (1) - increased sales (1) • shorter order times (1) - greater use if ICT (1) • more sales (1) - better quality (1) • increased sales (1) - more profit (1) • better reputation / customer satisfaction (1) - more reliability (1) • increased profits (1) - less waste product (1) • better control of stock - computer links to manufacturer (1) <p><i>Benefit must relate to retailer</i> <i>Low response (1) or detailed response (2)</i></p> <p><i>Two low responses one mark e.g. it is cheaper or quicker - only one mark.</i></p>	1x1 1x1	(2)
(Total mark 8)				

Question		Expected answers	Mark allocation
5318_02_Q06			
Name two examples of communication technology			
6	(a)	<p><i>One mark per relevant example x 2</i></p> <ul style="list-style-type: none"> • Mobile phone / infra-red / blue tooth • Email / messaging • Internet / wireless / WIFI • Video conferencing • Electronic point of sale (EPOS) • EDI • ISDN • Texting • Phone • Fax • Walkie Talkie 	<p>1x1 1x1</p> <p>(2)</p>
Describe the traditional communications method it has replaced			
6	(b)	<ul style="list-style-type: none"> • Mobile phone - Landline, Pager, Public address system • Email - Fax, Letter, memo, report sheets, telephone • Internet - Books, journals, buyers guides, catalogues, brochures • Video conferencing - Travel to central location • Electronic point of sale (EPOS) - Stock taking, manual ordering, income calculations • EDI - postal documents • ISDN - analogue transmission • Texting - phone / conversation • Phone - telegrams • Fax - letters / memos / post / • Walkie Talkie - face to face <p><i>Mark allocation 1 per relevant example must relate to technology given in 6(a) and manufacturer</i></p> <p><i>If part (a) not answered no mark awarded.</i></p> <p><i>Do not accept:</i></p> <ul style="list-style-type: none"> • Television / TV • CAD • Radio • Computer • Laptop 	<p>1x1 1x1</p> <p>(2)</p>

Question		Expected answers	Mark allocation	
5318_02_Q06		Explain one benefit to the manufacturer of using this replacement new technology		
6	(c)	<p>An explanation that makes reference to:</p> <ul style="list-style-type: none"> • Mobile phone - flexibility / roaming location • Email - immediate permanent record • Internet - immediate vast access to information • Video conferencing - no travel expenses / less time wasted in travelling • Electronic point of sale (EPOS) - faster / more accurate • EDI - immediate transfer of information / no hard copies needed / less storage space • ISDN - more data transferred in parallel • Texting - stored record of transaction • Phone - immediate two way conversation • Fax - hard copy record • Walkie Talkie - Roaming location / flexibility / cost <p>Other benefits may be seen in the light of:</p> <p><i>Speed, accuracy, JIT, information retrieval, meets consumer demands, quicker, increased sales, reduced stock levels, reduced running costs, reduced lead times, calculation of sales, stock taking quicker/easier, storage space reduced or any other appropriate response</i></p> <p><i>Benefits must relate to the manufacturer</i> <i>If only the replacement or original technology is given and the benefit is appropriate allow follow through up to 1 mark.</i></p> <p><i>Two low response 1 mark only, e.g. faster & easier</i></p>	2x1 2x1	(2) (2)
(Total mark 8)				

Question		Expected answers	Mark allocation
5318_02_Q07		Explain the benefits information and data handling system have on:	
Production efficiency			
7	(a)	<p>One mark for benefit One mark for how</p> <ul style="list-style-type: none"> • Accurate information (1) - updated regularly (1) • Detailed information (1) - high storage space (1) • Fast access to data (1) - search / sort / query (1) • Improved planning (1) - short / less time (1) • Forecasting (1) - collect volumes of data (1) / modelling (1) • Cost of control (1) - better scheduling (1) • Waste control (1) - process monitoring / control (1) • Reduced stock holding(1) - tracks trends / JIT (1) • Training records (1) - skilled monitoring (1) • Wage information (1) - ease of cost monitoring (1) • Any other appropriate response <p><i>Low response (1) or detailed statement (2)</i></p>	<p>1x1 1x1</p> <p>(2)</p>
Marketing			
7	(b)	<p>One mark for benefit One mark for how</p> <ul style="list-style-type: none"> • Accurate sales information (1) - instant feedback (1) • Detailed customer information (1) - tailoring product to target markets (1) • Information for marketing strategies/campaigns (1) - tailoring products to target markets (1) • Information for advertising campaigns (1) - choosing correct media (1) • Profit information available (1) - modelling sales / demand (1) • Ordering to meet sales faster (1) - meeting demand (1) • Any other appropriate response <p><i>Low response (1) or detailed statement (2)</i></p>	<p>1x1 1x1</p> <p>(2)</p>
(Total mark 4)			
Total marks for Section A			45marks

SECTION B				
<i>Question</i>		<i>Expected answers</i>		<i>Mark allocation</i>
5318_02_Q08		In the box below, explain, using notes: (a) Functions of the fats/oils		
8	(a)	An answer that makes reference to three of the following points: <ul style="list-style-type: none"> • Shortness • Crispiness • Barrier between flour (gluten) and liquids • Prevent toughness • Enhances flavours of other ingredients • Enrichment • Flavour • Binding / holding together • Shelf life • Or any appropriate function 	3x1	(3)
<i>Notes only up to 3 marks</i>				

Question		Expected answers	Mark allocation	
5318_02_Q08		In the boxes below, explain, using notes and sketches: (b) Function of the packaging		
8	(b)	<p>Function of the packaging</p> <ul style="list-style-type: none"> • To hold biscuits in place • To prevent contamination of the products • Convenient to carton/box • Convenient to display by retailer • To encourage sales i.e. colour, design • To provide information i.e. ingredients, nutrition, manufacturer/retailer, weight, best before, bar coding etc • Re-sealable - consumer to store • Or any appropriate function <p><i>Answer must contain both notes and sketches. Max two marks if only notes or unexplained sketches used. Notes up to 3 marks</i></p> <p>Example</p> 	3x1	(3)
(Total mark 6)				

<i>Question</i>			<i>Expected answers</i>	<i>Mark allocation</i>	
5318_02_Q09ai			Write in the table above two missing stages in manufacturing of digestive biscuits.		
9	(a)	i	<ul style="list-style-type: none"> • Marketing (1) • Processing / Production / making (1) <p>Must be in this order</p> <p><i>Do not accept production planning</i></p>	1x1 1x1	(2)
5318_02_Q09aii			State the stage where the “Best Before” information is applied.		
9	(a)	ii	<p>Stage where “best before” is applied:</p> <ul style="list-style-type: none"> • Packaging / packaging and dispatch • Boxing • Stage 7 / stage seven <p><i>Do not accept any other answers</i></p>	1x1	(1)

Question			Expected answers	Mark allocation	
5318_02_Q09bi			Describe the following two stages in the manufacture of the digestive biscuits.		
			Production planning		
9	(b)	i	<p>Appropriate description to include three of the following points:</p> <ul style="list-style-type: none"> • Scheduling production (1) • Converting order to production (1) • Materials requirements (1) • Labour requirements (1) • Deadlines (1) • Throughputs (1) • Machinery / equipment requirements (1) • Quality checks (1) • Control points / checks (1) • Health and safety (1) • Hygiene / food safety • Any other appropriate responses <p><i>The stage where the specification of the digestive biscuit is used by the planning team to set out all operations and schedule(1) the biscuits through the production department to meet required delivery times (1). This could include ordering any special ingredients, materials (1) for making biscuits.</i></p> <p><i>1 x 1 mark low response, 3 x 1 mark 3 low responses or up to 3 for detailed response</i></p>	3x1	(3)

Question			Expected answers	Mark allocation	
5318_02_Q09bii			Packaging and dispatch		
9	(b)	ii	<p>Appropriate descriptions including three of the following points:</p> <p><u>Packaging and Dispatch</u></p> <ul style="list-style-type: none"> • Application of protective packaging (1) • Assembling orders (1) • Application of codes, dates, tech info (1) • Picking orders (1) • Assembly loads (1) • Packing into outer boxes (1) • Making / keeping records (1) • Application customers (1) • Quality checks (1) • Final visual checks (1) • Collation of multiples of item (1) • Any other appropriate response <p><i>E.g. the stage where the baked digestive biscuits are wrapped in protective materials i.e. film, codes and best before information is applied and are then packed into outer boxes readily to be sent to the customers.</i></p> <p><i>1 x 1 mark low response, 3 x 1 mark 3 low responses or up to 3 for detailed response</i></p>	3x1	(3)
(Total mark 9)					

<i>Question</i>			<i>Expected answers</i>	<i>Mark allocation</i>	
5318_02_Q10ai			Name the specific ingredient commonly used in digestive biscuits to make them: short to eat		
10	(a)	i	<ul style="list-style-type: none"> • Fat (1) • Shortening (1) • Vegetable oils /fats (1) • Butter/Margarine (1) • Butter oil (1) 	1x1	(1)
5318_02_Q10aai			Name the specific ingredient commonly used in digestive biscuits to make them: brown in colour		
10	(a)	ii	<ul style="list-style-type: none"> • Bran (1) • Wheat meal flour (1) • Brown flour (1) • Wholemeal flour (1) • Wholegrain flour (1) 	1x1	(1)
5318_02_Q10bi			Explain the functions of raising agents:		
10	(b)	i	<ul style="list-style-type: none"> • Lighten texture (1) • Open texture (1) • Increase size (1) • Enhance shortness (1) • Increase crispness (1) • Any other appropriate responses (1) <p><i>1 mark per response up to 2</i></p>	3x1	(3)

<i>Question</i>			<i>Expected answers</i>	<i>Mark allocation</i>	
5318_02_Q10bii			Name two materials that could be used as raising agent		
10	(b)	ii	<p>Two materials from:</p> <ul style="list-style-type: none"> • Sodium Bicarbonate (1) • Bicarbonate of soda (1) • Sodium hydrogen carbonate (1) • Baking soda • Ammonium Bicarbonate (1) • Tartaric acid (1) • Malic acid (1) • Ammonium carbonate (1) • Cream of tartar (1) • Self raising flour (1) • Any currently used raising agent (1) <p><i>1 mark per material up to 2</i></p>	2x1	(2)

Question		Expected answers	Mark allocation	
5318_02_Q10c		Explain how the use of modern materials has helped the manufacturer of digestive biscuits develop new products:		
10	(c)	<p>An explanation that makes reference to three of the following points:</p> <ul style="list-style-type: none"> • Flavours (1) • Tastes (1) • Aromas (1) • Colours (1) • Textures (1) • Shelf life (1) • Easier manufacturing (1) • Functionality (1) • More varieties (1) • New markets (1) • slimming (1) • blood pressure (1) • heart (1) • health (1) • low fat (1) • low sugar (1) • size increase (1) • eating qualities / attributes (1) • reduce costs (1) • any other appropriate responses <p><i>If a relevant check is identified follow by why or how to allow up to 2 marks</i></p> <p><i>If procedure is omitted but how or why is identified allow maximum of 1 mark</i></p> <p><i>Up to 3 x 1 mark low responses or up to 3 marks for a detailed response</i></p>	3x1	(3)
(Total mark 10)				

<i>Question</i>			<i>Expected answers</i>	<i>Mark allocation</i>	
5318_02_Q11			Describe two quality control procedures used at the packaging stage of the manufacture of the digestive biscuits that utilise monitoring control technology:		
11	(a)	i & ii	<p>One mark for identifying QC procedure One mark for how</p> <ul style="list-style-type: none"> • Check for correct biscuit sizes (1) - electronic gauges (1) • Check for correct biscuit colour (1) - colour scanner/ digital images (1) • Check for correct shape (1) - digital images / gauges (1) • Check for contamination (1) - x rays, metal detection (1) • Check for correct weights (1) - electronic weighing devices (in-line) (1) • Check texture (1) - texture analysers (1) • Check for pack seals (1) - scanners (1) • Check for packaging misprints (1) - scanners (1) • Check for codes (1) - scanners (1) • Check for damaged product (1) - scanners (1) • Check for misshape (1) - scanners (1) • Any other appropriate responses <p><i>Must have relevant monitoring / control technology link</i></p>	2x1 2x1	(2) (2)

Question		Expected answers		Mark allocation	
<p>Explain one benefit of applying each quality control procedure, described in (a) above, to the <u>manufacturer</u>:</p>					
11	(b)	i & ii	<p>One mark for identifying benefit to the manufacturer One mark for how</p> <ul style="list-style-type: none"> • Reduced customer complaints (1) - better products (1) • Control of costs (1) -cheaper product / more profits (1) • Avoids faulty products being produced (1) - early detection (1) • Increased sales (1) - consistent product / lower prices (1) • User confidence (1) - consistent product / less returns (1) • Reduced waste (1) - control of manufacturing process (1) • Reliable product (1) - monitoring standards / testing (1) • Increase sale able life (1) - less risk of contamination / mould (1) • Reduced risk of prosecution - systematic checks / controls (1) • Retailer confidence (1) - systematic checks (1) • Detection of broken machinery (1) - less faulty products (1) • Any other appropriate responses <p><i>2 x 1 mark for Low response or 2 x 2 marks for detailed responses</i> <i>If no answer or inappropriate answer is given in part 11(a) allow follow through up to 1 mark each benefit.</i></p>	2x1 2x1	(2) (2)

Question		Expected answers	Mark allocation	
Explain one benefit of applying each quality control procedure, described in (a) above, to the <u>consumer</u> :				
11	(c)	<p>One mark for identifying benefit to the consumer One mark for how</p> <ul style="list-style-type: none"> • Safer product to consumer (1) - confidence in product reliability (1) • Consistent product (1) - ensures standards are met (1) • Longer useable life (1) - don't have to but as often (1) • Product reliability (1) - confidence with company (1) • Lower prices (1) - less waste / scrap / more efficient (1) • Any other appropriate responses <p><i>2 x1 mark for low responses, 2 x 2 marks for detailed responses</i> <i>If no answer or inappropriate answer is given in part 11(a) allow follow through up to 1 mark each benefit.</i></p>	2x1 2x1	(2) (2)
(Total mark 12)				

<i>Question</i>			<i>Expected answers</i>	<i>Mark allocation</i>	
5318_02_Q12			The utilisation of modern technology in the manufacture of digestive biscuits has brought changes. Explain these changes in:		
the type and size of workforce					
12	(a)	i	<p>The types and size of workforce</p> <p>An explanation that makes reference to two of the following points:</p> <ul style="list-style-type: none"> • Smaller in size (1) • Higher level of skills (1) • Work patterns - shifts (1) • Better educated (1) • Higher level of development skills required (1) • Less employment for unskilled (1) • Updating and training often required (1) • Any other appropriate response 	2x1	(2)
the working environment					
12	(a)	ii	<p>The working environment</p> <p>An explanation that makes reference to two of the following points:</p> <ul style="list-style-type: none"> • Cleaner (1) • Safety (1) • Quieter (1) • Healthier (1) • Any other appropriate response 	2x1	(2)

<i>Question</i>		<i>Expected answers</i>		<i>Mark allocation</i>	
the global environment					
12	(a)	iii	<p>The global environment</p> <p>An explanation that makes reference to two of the following points:</p> <ul style="list-style-type: none"> • Distribution - network increased (extra fuel) (1) • carbon emissions (1) • Operational efficiencies - less fossil fuels (1) • Recyclable materials (1) • Reduced waste - landfill (1) • Increased consumption of raw materials (1) • Any other appropriate response 	2x1	(2)

<i>Question</i>		<i>Expected answers</i>		<i>Mark allocation</i>	
5318_02_Q12bc					
Describe one disadvantage that modern technology has had on the workforce:					
12	(b)		<p>A description that makes reference to two of the following points:</p> <ul style="list-style-type: none"> • Less staff required (1) • Re-training required (1) • Redundancy threat (1) • Increased travel to work / centralisation (1) • Working pattern / 24/7 operation (1) • Any other appropriate response 	2x1	(2)
Describe one advantage that modern technology has had on the global environment					
12	(c)		<p>A description that makes reference to two of the following points:</p> <ul style="list-style-type: none"> • Plant more fuel efficient (1) • lower emissions & less consumption (1) • Increased productivity (1) • less fuel used (1) • Reduced wastage (1) • product, packaging etc (1) • less landfill, incineration (1) • Improved manufacturing control (1) • less pollution (1) • Any other appropriate response 	2x1	(2)
(Total mark 10)					

<i>Question</i>		<i>Expected answers</i>	<i>Mark allocation</i>	
5318_02_Q13		Describe how CAD is used by the manufacturer to increase market share.		
13	(a)	<p>A description that makes reference to four of the following points:</p> <ul style="list-style-type: none"> • To design new or improved products quickly (1) • better retailer acceptance (1) • improved consumer acceptance (1) • To design new or improved packaging (1) • quicker to market (1) • 2D, 3D modelling to show customers (1) • Any other appropriate response 	4x1	(4)
Describe how CAM is used to control manufacturing costs.				
13	(b)	<p>Description that makes reference to four of the following points:</p> <ul style="list-style-type: none"> • Machine settings are ideal (1) • Less energy lost / waste (1) • Only correct number manufactured (1) • Controlled environment uses less fuel / energy utilities (1) • Correct ordering of materials (1) • Lower staffing requirement (1) • Costs more visible / easier traced (1) • Immediate alerts to out of standard performance (1) • Manufactured just in time (1) • Lower unit cost after initial investment (1) • Continuous operation (1) • Less downtime (1) • Any other appropriate response • Control and adjust weights (1) • Control and adjust temperatures / hot or cold (1) • Improves product consistency (1) 	4x1	(4)
(Total mark 8)				
Total Marks for Section B			55	
Total Marks for the whole Paper for section A and B			100	