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Mark Scheme (Results)

Summer 2013

GCSE Engineering and Manufacturing
5EM03 3F
(Paper 3F: Mechanical/Automotive)

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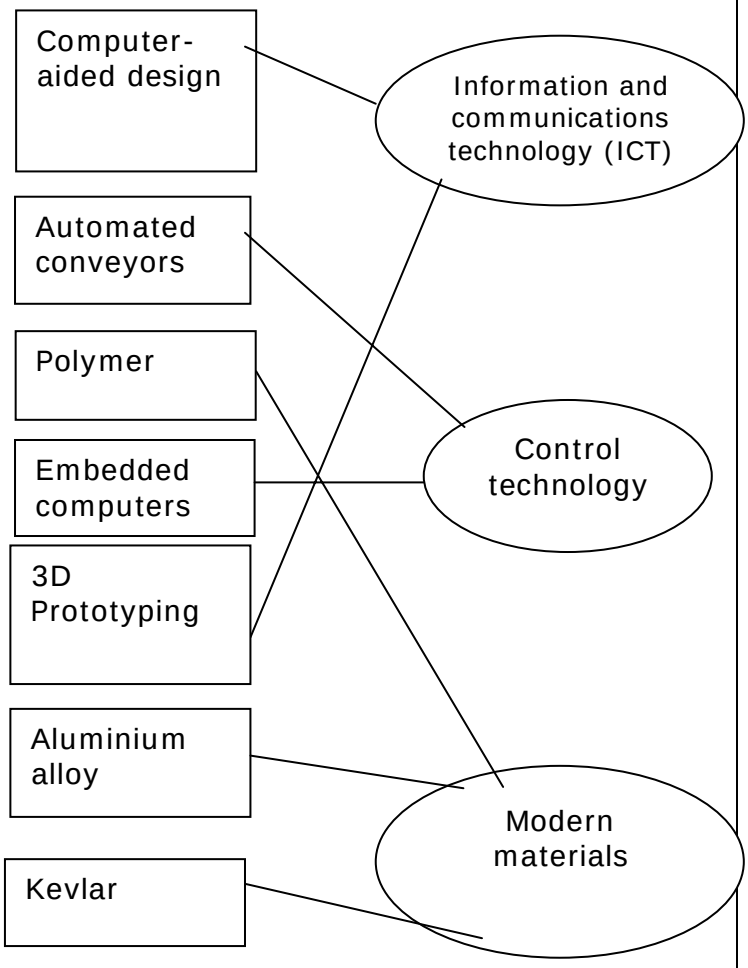
Question	Answer	Mark
1(a)	• Metal curtain rail • Aluminium frame *If 3 boxes or more are crossed - no marks.* (2 x 1)	**(2)**
1(b)	• Brake calliper • Fuel cap *If 3 boxes or more are crossed - no marks.* (2 x 1)	**(2)**
		(Total 4 marks)

Question	Answer	Mark
2(a) 1	• Scriber • Scribe *Accept any recognisable spelling (phonetic) of the answers above.* (1 x 1)	**(2)**
2(a) 2	• Machine vice • M\C Vice • Mechanics vice • Engineers vice • Vice Do not accept 'hand vice'. *Accept any recognisable spelling (phonetic) of the answers above.* (1 x 1)	
2(b) 1	An answer that makes reference to two of the following points: • a fastener (1) • used with a key (1) • to join two pieces of material together / used to fix together components (1) • threads in a hole (1) • holds two pieces of metal together (1) when tightened (1) • a semi-permanent fastener / semi-permanent joint (1) eg Threads in a hole (1) to fix together components (1). (2 x 1)	

2(b) 2	An answer that makes reference to two of the following points: • a fastener (1) • used with a nut / bolt (1) • stops nut / bolt coming loose (1) • spreads the load (1) when tightened (1) • reduces friction (1) between mating parts (1) • reduces damage (1) e.g. Used to reduce friction (1) between a rotating and a stationary component (1) Used with a rotating fastener (1) to spread the load (1) (2 x 1)	**(4)**
		(Total 6 marks)

Question	Answer	Mark
3	Award 1 mark for each key term correctly linked to a key area **Key Term** **Key Area**  *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.*	**(7)**
		(Total 7 marks)

Question	Answer	Mark
4(a)	Appropriate two **products** such as e.g. • Ignition spark tester • twist drill set • bike rack for car • side lever grease guns • bench pillar drill • lazy tong riveter • hydraulic cylinder • foot pump • trolley jack • fire extinguisher • motorbike • bbq • filing cabinet • car • gearbox • toolbox A brand name of a specific product is acceptable *This list is not exhaustive, accept any product that contains mechanical/automotive componentry or has an association with the sector* (2 x 1)	**(2)**
4(b)(i)	• design • marketing • production planning • materials supply and control • processing/production • assembly/finishing • packaging/dispatch (1 x 1)	**(1)**
4(b)(ii)	One mark for identifying benefit x 2 One mark for why x 2 Appropriate benefit to the manufacturer e.g. **design** • better designs (1) – can link other information into the process (1), or best designs can be maximized by simulation (1) • faster (1) – many CAD features such as copy, array can be used (1) or if mistakes made they can be quickly rectified (1) **marketing** • accurate information (1) – less mistakes made in capturing data (1) • better/accessible knowledge base (1) – easy data entry/data analysed easier (1) • speeds up the editing of marketing literature (1) – customers always kept up to date (1)	

Question	Answer	Mark
	production planning • easier or quicker planning (1) – computers are faster (1) • spreadsheets can be adapted as Gantt Charts (1) for planning – faster than human application (1) • accurate reading of planning sheets (1) – professional output (1) **materials supply and control** • buy best available materials (1) – use of internet (1) • waste control (1) – by monitoring processes and quality control of processes (1) **processing / production** Answer could relate to the application of CAM and control technology such as:- • 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/application of CAM techniques (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) **assembly / finishing** Answer could relate to the application of CAM and control technology such as:- • 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) **packaging / dispatch** Answer could relate to the application of CAM and control technology such as:- • 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) *Low response (1) or two low responses (2) or detailed response (2)*	

Question	Answer	Mark
	If no answer or incorrect answer in 4(b)(i) then no marks awarded for 4(b)(ii). (2 x 1) (2 x 1)	**(4)**
4(c)(i)	Accept any appropriate modern material suitable for Product 1. e.g • Side lever grease guns -Aluminium/Aluminium alloy • Trolley jack - steel • Foot pump - Polymer / plastic [although plastic is not technically correct, accept the term 'plastic'] • Various thermoplastics (PP, HDPE, PVC etc) • Other appropriate materials / a material currently used for the given product ***No answers/incorrect answer to 4(a) no marks for 4(c)(i)*** ***Markers need to refer to response in 4(a).*** (1 x 1)	**(1)**

4(c)(ii)	One mark for identifying change One mark for description • functional characteristics (1) - weight (1) / size (1) / protection (1) / rigidity (1) • mechanical characteristics (1) - strength (1) / durability (1) • aesthetic characteristics (1) - surface finish (1) / texture (1) / colour (1)/ appearance (1) • Meets requirements of intended markets (1) – appeal to target audience (1) • quality standards (1) – consistency (1) / reliability (1) • weight (1) – better strength to weight ratio (1) • Any other appropriate functional / mechanical / aesthetic characteristic relating to the change (1) e.g. improves strength and durability (1) of the product allowing more items to be carried (1) ***If no answer or incorrect answer is given in 4(c)(i) no marks awarded for 4(c)(ii).*** (2 x 1)	**(2)**
		(Total 10 marks)

Question	Answer	Mark
5(a)(i)	An example • materials supply • materials control • process control • storage • linking CNC machines together • monitoring quality • documentation control • workflow control • movement control • application within sector eg CNC lathe Accept any appropriate response (1 x 1)	**(1)**
5(a)(ii)	One mark for benefit One mark for explanation • reduced machine loading times (1) – automatic monitoring (1) • improve quality / accuracy / consistency(1) – control of processes (1) • reduced wastage (1) – optimised production methods (1) • improved efficiency (1) – faster / quicker throughput (1) • better process control (1) – in process monitoring (1)	

Question	Answer	Mark
	• reduced labour (1) – automated processes (1) • lower costs (1) – reduced wastage / faster / continuous production / saves energy(1) • faster processes (1) – less manual input (1) • reduced health and safety risks (1) – machines can operate with a reduced manual input (1) *Do not accept 'easier' or 'faster' / 'quicker' without explanation.* *Low response (1) or two low responses (2) or detailed response (2)* (1 x 2) (2 x 1)	**(2)**
5(b)(i)	Appropriate example • to create virtual products • 2D/3D modelling • show ideas • show new product concepts • simulation Do not accept 'design' or 'designing' on its own. Accept any appropriate response (1 x 1)	**(1)**
5(b)(ii)	One mark for benefit One mark for explanation • accurate drawings (1) – through entry of accurate data on sizes (co-ordinates) (1) • quicker development time (1) – through simulation (1) • easier to communicate, i.e. ICT (1) – quick 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) • easier storage of data/information and retrieval (1) – interaction with databases (1) • ability to convert from 2D to 3D (1) - faster modelling (1) *Do not accept 'easier' without explanation* *Low response (1) or 2 low responses (1) e.g. its quicker and more accurate – only one mark or detailed response (2)* (1 x 2) (2 x 1)	**(2)**
5(c)	One mark for benefit One mark for explanation • more consistent products (1) – accurate processes (1) • shorter order times (1) – faster production (1) • better quality (1) – can produce to tighter tolerances (1)	**(2)**

Question	Answer	Mark
	• cheaper products (1) – less waste (1) • may have many variations on product design/model (1) – can be flexible production methods (1) *Do not accept 'easier' without explanation* *Low response (1) or 2 low responses (1) e.g. its quicker and more accurate – only one mark or detailed response (2)* Answer must relate to the consumer (1 x 2) (2 x 1)	
		(Total 8 marks)

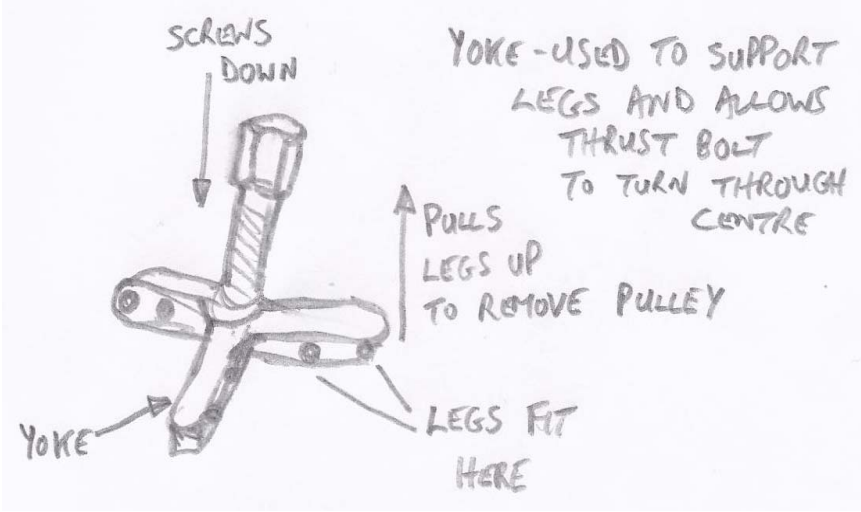
Question	Answer	Mark
6(a)	Appropriate description containing two points: • a piece of software / Microsoft Excel (1) • a method of organising / storing data /information (1) • carry out calculations (1) • displaying charts / graphs (1) • information is displayed in tabular form (1) • contains cells / rows (1) • can add up cells / rows / columns (1) • can perform computer operations such as copy / cut / paste / formatting (1) Accept any appropriate response. *Do not accept repetitive responses* *Low response (1) or two low responses (2) or detailed response(2).* (1 x 2) (2 x 1)	**(2)**
6(b)(i)	Traditional method databases have replaced such as: • phone books / lists (1) • sales lists (1) • materials lists (1) • supplier data (1) • stock data (1) • buyers' guide (1) • logbook (1) • handwritten files / documents (1) • paper files / documents (1) • paper based/physical filing systems (1) Accept any appropriate response (1 x 1)	**(1)**
6(b)(ii)	One mark for advantage One mark for why • convenience (1) – don't have to carry out calculations, manufacturers database does it for them (1) • cost savings (1) – manual costs reduced as information is visible (1) • time savings (1) – get answers in real time from the manufacturer (1) • less data entry (1) – can link databases together (1) • exploit market better (1) – compare customer data etc better (1) • has up to date information on products (1) – integrated systems, distributor to manufacturer (1) • professional development culture (1) - encourages employees to keep up to date with modern technology (1) • provides cost/supply data (1)- better stock	**(4)**

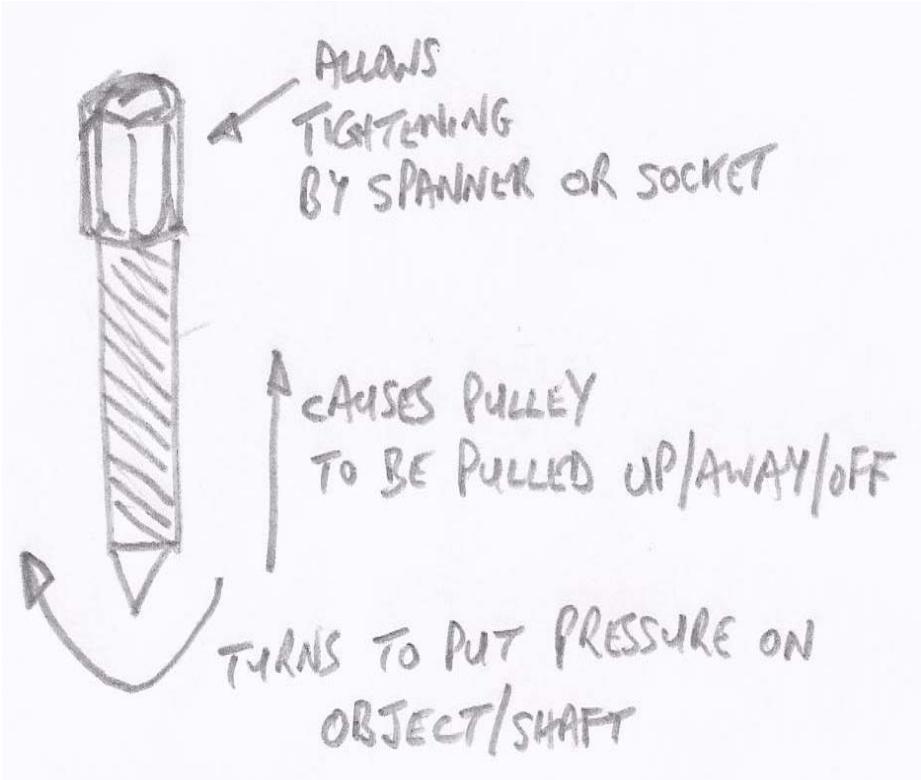
Question	Answer	Mark
	control (1) • saves space (1) – keeps data secure (1) *Do not accept quicker, faster, easier, simple without explanation* Accept any appropriate response Answers must be relevant to the distributor (2 x 2)	
6b(iii)	One mark for disadvantage One mark for why • costly to install (1) – need computer skills (1) • costly to maintain (1) – IT maintenance people expensive (1) • can lose connectivity (1) – information temporary lost (1) • transfer of errors (1) – wrong data originally entered (1) • people may not get involved (1) – frightened of IT / lack IT skills (1) • IT skills replace research skills (1) – some of the knowledge base lost (1) • system can breakdown/fail (1)- data can be lost (1) • data can be 'hacked' (1)- viruses can be introduced (1) Accept any appropriate response Answer must be relevant to the manufacturer (1 x 2)	**(2)**
		(Total 9 marks)

Question	Answer	Mark
7(a)	One mark for benefit Two marks for explanation • easily reacts to risky situations (1) – applying particular outputs (1) to given inputs (1) • reduces danger (1) – part of the monitoring	**(3)**

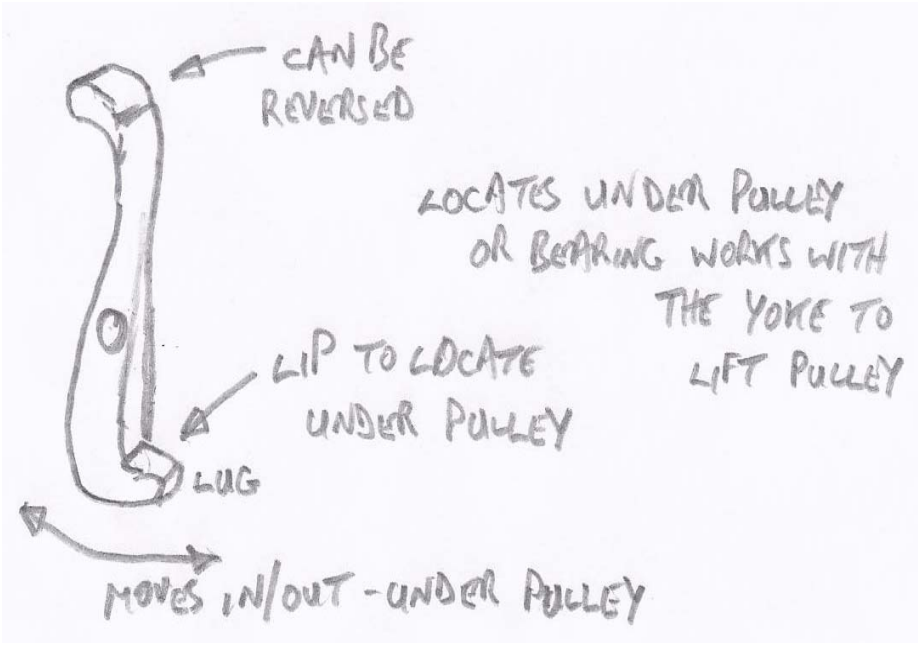
Question	Answer	Mark
	system (1) that reacts very quickly (1) • is likely to continue working over a period of time (1) – older technology may fail earlier (1) and cause accidents (1) • could save life or injury (1) - due to the speed of processing (1) and action /alert (1) Accept any appropriate response up to 3 marks for detail. (1 x 3)	
7(b)	One mark for benefit Two marks for explanation • accurate control (1) – always responds (1) to given manufacturing situations (1) • allows dual tasking (1) – can have many inputs and outputs (1) allowing complex manufacturing tasks to be carried out (1) • increases production / output (1) – gives immediate reactions (1) to varying inputs (1) • changes in manufacturing space requirements (1) – older technology requires larger component parts (1) such as cabinets / wiring / switches / relays (1) • cost effective production (1) – reliable (1) and doesn't make mistakes (1) • can be used for analysis of manufacturing system / process (1) – allows improvements to be made (1) or find out what went wrong (1) • good waste control (1) – process monitoring / control (1) • can detect faulty products (1) – tracks trends (1) and reacts accordingly (1) Accept any appropriate response up to 3 marks for detail. (1 x 3)	**(3)**
		(Total 6 marks)

Question	Answer	Mark
8(a)	An answer that makes reference to any of the following points: • screws on the thrust bolt (1) • hold legs in place (1) • helps in the pulling action (1) • pulls legs up (1) • allows thrust bolt to screw down / through centre (1)	

Question	Answer	Mark
	Accept any appropriate response. *Must have notes and sketches (notes or sketches only maximum 2 marks)*  *1 x 1 mark low response, or up to 3 marks for detailed response* (3 x 1)	**(3)**
8(b)	An answer that makes reference to any of the following points: • cause pulley to lift upwards (1) • allows spanner / socket to be used to tighten (1) • turns to push downwards on the shaft (1) • keeps whole puller central (1) • used with the yoke to support legs (1) Accept any appropriate response. *Must have notes and sketches (notes or sketches only maximum 2 marks)*	**(3)**

Question	Answer	Mark
	 *1 x 1 mark low response, or up to 3 marks for detailed response* (3 x 1)	

8(c)	An answer that makes reference to any of the following points: • can be reversed (1) • lug / lip locates under the pulley / bearing (1) • is connected to the yoke to give the upward motion (1) • the leg moves in and out under the item to be pulled off (1) • ensures the pulley is extracted without damage (1) Accept any appropriate response. *Must have notes and sketches (notes or sketches only maximum 2 marks)*	

	 *1 x 1 mark low response, or up to 3 marks for detailed response* (3 x 1)	**(3)**
		(Total 9 marks)

Question	Answer	Mark
9(a)(i)	• Production planning / Planning • Material supply and control / Material supply / Material control / Material purchase *Do not accept 'production' on its own* *Must be in this order* (2 x 1)	**(2)**
9(a)(ii)	• Packaging and dispatch • Packaging • Stage 7/stage seven • seven/7 (1 x 1)	**(1)**

9(b)(i)	Appropriate descriptions including three of the following points (statements must be applicable to the triple leg reversible pullers): <u>Design</u> • Development of the design brief (1) • Design specification for the mass produced triple leg reversible pullers (1) • Listing design criteria (1) • Listing performance requirements (1) • Use of internet/websites to investigate existing designs (1) • Sketches are produced by hand (1) • Initial design ideas are produced (1) • Development of design ideas (1) • Modelling ideas using ICT (1) • Using CAD software (1) • Prototyping before manufacture (1) • Sourcing materials/supplies/consumables (1) • Costing resource requirements (1) • Communicating with client/customer (1) Any other appropriate response e.g. The stage where the design brief for the yoke of the mass produced triple leg reversible pullers would be developed (1) and where designs would be created (1), by hand and using CAD software (1), in order to model the images/yoke actions prior to manufacture (1). *Up to 3 marks* *Low response (1) or three low responses (3) or detailed response (3).* (3 x 1) (1 x 3)	**(3)**
9(b)(ii)	Appropriate descriptions including three of the following points (statements must be applicable to the triple leg reversible pullers): <u>Marketing</u> • Gathering consumer opinion (1) • Calculating products costs (1) • Developing market plan (1) • Using market research (1) • Developing a competitive edge (1) • Advertising the triple leg reversible pullers (1) • Promoting the triple leg reversible pullers (1) • Carrying out questionnaires / surveys (1) • Pricing for the target market (1) • Using trade/electronic (internet, email) media (1) • Identifying gaps in the market (1)	

	Any other appropriate response e.g. The stage where the advertising and promotion (1) of triple leg reversible pullers is carried out following a range of market research strategies (1) to gather consumer opinion (1). e.g. The stage where the manufacturer uses a range market research strategies (1) to gather people's opinions (1) to be able to advertise and promote (1) the triple leg reversible pullers. *Up to 3 marks* *Low response (1) or three low responses (3) or detailed response (3).* (3 x 1) (1 x 3)	**(3)**
		(Total 9 marks)

Question	Answer	Mark
10(a)	• Chrome vanadium steel • Chrome molybdenum steel • Chromium steel • Toughened steel • Forged carbon steel • Forged steel • Medium carbon steel • Aluminium alloy • Magnesium alloy *Do not accept 'stainless steel', 'steel' or 'aluminium' on its own* (1 x 1)	**(1)**

Question	Answer	Mark
10(b)(i)	Any three of the following: • turning • drilling • milling • hardening / surface hardening • annealing / normalising / toughening • polishing / coating / plating / blacking • fitting • cutting / shearing • presswork / stamping • casting / moulding / die-casting / investment casting Any other appropriate response 1 mark per response up to 3 *Accept any recognisable spelling (phonetic) of the answers above.* (3x1)	**(3)**

10(b)(ii)	An explanation that makes reference to three of the following points: • quick method / fast production rate • no machining needed • process adds strength to the leg • appropriate grain flow • any excess material can be re–used • unit costs are low for medium to high volume forging runs • highly automated process • reliable process • minimal waste • not labour intensive for the production of the leg • can be mass produced easily • products have consistent quality • 3D shapes can be forged fairly easy Any other appropriate response e.g. For small items such as the reversible leg the process can be automated easily (1), using less labour (1), it produces a component with built in strength (1) due to the enhanced grain flow (1) around the lug/lip. *Up to 3 marks* *Low response (1) or three low responses (3) or detailed response (3).* (3 x 1) (1 x 3)	**(3)**
10(b)(iii)	An explanation that makes reference to three of the following points:	

	• improved wear resistance/withstand corrosive environment • last longer during use • much quicker production rate • can be automated easily • saves money as it is quicker • safer product when handling • no sharp edges • process builds in better strength to the thread • distorted grain flow enhances dynamic properties Any other appropriate answer e. g. Thread rolling can be automated (1) which means it is quicker (1) and it produces a very strong thread (1) by squashing the grains (1). *Up to 3 marks* *Low response (1) or three low responses (3) or detailed response (3).* (3 x 1) (1 x 3)	**(3)**
		(Total 10 marks)

Question	Answer	Mark
11(a)(i)	An explanation that makes reference to two of the following points. • Monitor • Adjust • Changing • Intervention • To keep within specification • Use of PLC • Use of embedded computers • Data comparison • Data collection • Closed loop/feedback Eg The active changing of the process parameters (1) based on the results on process monitoring (1) Eg Monitors the manufacturing/production process (1) so the product meets its specification (1)	**(2)**
11(a)(ii)	One mark for identifying reason x 2 One mark for explanation x 2 • reduced customer complaints (1) **–** better products(1) • control of costs(1) – cheaper product / more profit (1) • avoids faulty parts being assembled(1) – early	

Question	Answer	Mark
	detection (1) • increased sales(1) – consistent product (1) • user confidence(1) –less returns (1) • reduced waste – control of manufacturing process (1) • reliable product (1) – monitoring standards testing / parts (1) • no breaking parts (1) – monitoring component / parts (1) • to alert the manufacturer of errors (1) – stop faulty product being made (1) • more efficient / faster production (1)- increased customer satisfaction (1) • improved product (1) and employee safety (1) Any other appropriate response (2 x 2)	**(4)**
11(b)	One mark for identifying QC used x 2 One mark for description x 2 • check physical damage (1) – by visual inspection (1) • dimensional/size checks (1) – by direct measurement or gauging (1) • positional checks (1) – use of optical template (1) • length of material / surface finish (1)- use of variable quality indicator / probe (1) • how many holes drilled in components (1) - use of attribute data (1) • thread details (1) – use of thread gauge (1) • properties testing (1) in system testing (1) • testing hardness of thrust bolt (1) – in process machine (1) Any other appropriate answer (2 x 2)	**(4)**
		(Total 10 marks)

Question	Answer	Mark
12(a)(i)	Any two from: • Higher level of skills (1) • Better educated (1) • Higher level of development skills required (1) • Updated and recently trained (1) • More flexible (1)	

Question	Answer	Mark
	Response must relate to type of work force and not size. Any other appropriate answer (2 x 1)	**(2)**
12(a)(ii)	One mark for change identified x 2 One mark for description x 2 • cleaner (1) – tidier processes / contained process (1) • safer (1) – machine can self regulate / work less likely to be done by humans / machines do not tire and become dangerous (1) • quieter (1) – processes can be enclosed (1) • healthier (1) – processes can monitor the environment and react accordingly (1) • noise pollution (1) – can be quieter / can be noisier (1) Any other appropriate answer *Low response or two low responses (1), detailed response (2)* (2 x 2)	**(4)**
12(a) (iii)	One mark for identifying benefit One mark for explanation • technology that is less dependent on finite resources (1) - makes efficient use of finite resources (1) • materials will be available for longer (1) - can use sustainable alternatives (1) • green materials have been developed (1) – that can biodegrade (1) • reduced wastage in production (1) - less materials used in production / resulting in less waste thrown into landfill (1) • reduce rework/waste (1) - ability to adapt process (1) • products last longer (1) – more appropriately designed / produced better (1) • machines can be systems based (1) – allows for energy recovery (1) • reductions in pollution (1) reduced transport requirements (1) Any other appropriate answer *Low response or two low responses (1), detailed response (2)* (2 x 1)	**(2)**

Question	Answer	Mark
12(b)	A description that makes reference to any four of the following: • bar code use can be automated (1) • assists with producing picking lists (1) • automatically update stock records (1) • prevents theft (1) • reduces human error (1) • enables tracking to be used after dispatch (1) • enables deliveries to be 'batched' together (1) • enables complaints to be traced (1) • assists in coordinating product re-calls (1) Any other appropriate answer *Low response (1) or four low responses (4) or detailed response (4).* (4 x 1) (1 x 4)	**(4)**
		(Total 12 marks)

Question	Answer	Mark
13	An explanation that makes reference to four of the following points: Customer satisfaction may be increased due to: • better strength to weight ratio • more appealing / better appearance • modern materials can be cheaper / reduced cost • can be machined easier so better quality product is made • less likely to break • smaller size / miniturisation • lower weight • smoother/brighter finishes • extends the life-time of product • better wear characteristics / improves wear resistance • harder materials / better surface finish • overall product easier / earlier machine ability • ability to change properties / can be heat treated • more consistent products can be produced Any other appropriate answer Customer satisfaction may be decreased due to: • pullers made be harder to repair	

Question	Answer	Mark
	• specialist parts have to be used • may only be one supplier Any other appropriate answer Answer can be all positive or a mixture of positive and negative *Low response (1) or detailed response (up to 4)* (4 x 1)	**(4)**
		(Total 4 marks)

Question	Answer	Mark
14 **QWC i, ii, iii**	**Indicative Content** Discussion to address the following: • *Issue* ▪ Use of ICT in production processes allows more flexible methods to be utilised and improves profitability meaning sales have flexibility to reduce prices if necessary or more money can be directed at marketing new opportunities to sell the triple leg reversible pullers. • *Development* ▪ Manufacturer needs to balance variation of product range with economies of scale ▪ Could lead to extra production capacity required by extra success of marketing ▪ Marketing and sales may need extra effort to deal with the increased efficiency of the production processes ▪ Targeting of products into the market place would be easier • *Issue* ▪ Use of modern and smart materials enabling a superior type of triple leg reversible pullers to be made more efficiently, marketed and sold for a higher profit meaning sales have flexibility to reduce prices if necessary or more money can be directed at marketing new opportunities to sell the triple leg reversible pullers. • *Development* ▪ Improve profitability by creating a more functional / aesthetically pleasing / durable triple leg reversible pullers which could be marketed as such ▪ More efficient production processes to be used, helping profitability	

Question	Answer	Mark
	▪ Superior product may generate more sales which means the sales team would have more customers to deal with ▪ Marketing would need to keep abreast of the better products produced using modern and smart materials and continually invest in new marketing materials. • *Issue* ▪ Use of systems and control technology enabling more efficient production which improves profitability meaning sales have flexibility to reduce prices if necessary or more money can be directed at marketing new opportunities to sell the triple leg reversible pullers. • *Development* ▪ Only likely to affect processes and profitability when improvements in the manufacturing environment are made ▪ Any cost reduction achieved within the processes can be passed on to the customer, generating more sales for the sales team to deal with. Or other appropriate answer/s Example answer (Level 3): Manufacturers can use ICT in the production processes, making them more efficient and therefore more profitable. The more efficient processes could lead to extra effort required to market and sell the triple leg reversible pullers. Modern or smart materials could be used to improve profitability by creating a superior triple leg reversible puller which could be marketed as such with a hope that it would increase sales. The use of these materials would also enable more efficient production processes to be used, also helping raise output that would be available for selling however marketing would need to keep the market place updated about any new materials used in the triple leg reversible pullers. Manufacturers could use systems and control technology to improve the efficiency of the production processes and potential increase in profitability. This success could lead to more items being available for sale which would increase the work capacity of the sales team. Alternatively this extra profit could used to fund more targeted marketing campaigns to increase the market share of the triple leg reversible pullers. (6 x 1)	**(6)**
		(Total 6 marks)

Level	Mark	Descriptor
	0	No material deserving of reward
1	1-2	The learner identifies at least two effects on marketing and selling caused through improvements to production process or profitability. The learner shows some understanding of the issues. The learner uses everyday language and the response lacks clarity and organisation. Spelling, punctuation and the rules of grammar are used with limited accuracy.
2	**3-4**	The learner gives a brief description of at least two effects on marketing and selling, or a detailed description of one effect caused through improvements to production process or profitability. The learner uses some technological / manufacturing terms and shows some focus and organisation. Spelling, punctuation and the rules of grammar are used with some accuracy. Some spelling errors may still be found.
3	**5-6**	The learner gives a detailed explanation of two or more effects on marketing and selling caused through improvements to production process or profitability. The learner uses a range of appropriate technological / manufacturing terms and shows good focus and organisation. Spelling, punctuation and the rules of grammar are used with considerable accuracy.
		(Total 6 marks)
	Total Marks for Section B	**60**
	Total Marks for the whole paper for Section A & B	**110**

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