

Design and Technology

General Certificate of Secondary Education **1959/02**

Industrial Technology: Paper 2

Mark Scheme for June 2010

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Mark schemes should be read in conjunction with the published question papers and the Report on the Examination.

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Question	Expected Answer	Mark	Rational
1	(a) (i) Injection moulding	[1]	
	(ii) Press formed	[1]	
	(b) (i) High density Polythene/Polypropylene	[1]	
	(ii) Stainless steel/aluminium alloy	[1]	
	(c) (i) part of the moulding	[1]	
	(ii) stamped/etched/engraved in	[1]	
(d)	two halves of the IJ moulding die come together	[1]	
(e)	wider base to increase stability/closed handle to increase stiffness/web designed into handle/improved spout for pouring 3x1	[3]	
Total [10]			
2	(a) support requires four slots at right angles to each other Feet require slots Appropriate sketch detail 2 x 1 and notes x 1	[3]	
	(b) (i) Borax/sif bronze	[1]	
	(ii) Exclude the air to stop oxidation/ encourage the brass to flow 2 x	[2]	
	(c) The design must hold the feet upright keep them equally spaced/ be quick to set up/ensure the jig does not become brazed to the product. Easy to set up. 4x1	[4]	
Total [10]			
3	(a) two ergonomic features clearly shown e,g handle bars to rider/ saddle height to leg length. 2x1	[2]	
	(b) bicycle for commuter FRAME light weight/folding/brief case rack/carry handle/safety WHEELS & TYRES small/ lightweight /durable/does not impair folding system/safety Handle bars up right/narrow width/ no accessories /quick folding system/safety /ergonomic considerations	[6]	
	(c) quality assurance covering all aspects of manufacturing performance from design/ manufacturing control/ record keeping and office systems	[2]	
Total [10]			

Question	Expected Answer	Mark	Rational
4 (a)	sketches and notes must show the blank held securely/a method of bending the component/the device held in a vice. Notes to include appropriate knowledge of materials components and processes. 4x 1	[4]	
(b)	the material tries to return to its original shape and therefore if bent to 90 degrees will settle at an angle less than 90 degrees. To achieve the correct angle the bend has to be taken beyond 90 degrees in the first instant.	[2]	
(c)	sketches and notes could show knowledge of or use of nuts and bolts. Answers need to include type of components/ material/length of components/drill sizes/ thread type. In the case of riveting the process.	[4]	
Total [10]			
5 (a)	a determination of the hazards that may cause hurt or damage in the work place. The hazard should be eliminated or controlled	[3]	
(b) (i)	control of substances hazard's to health	[1]	
(ii)	fumes dust toxic chemicals in a working environment.	[2]	
(c)	built to last = reliability, customers need a reliable product, designed for maintenance Product works but the design is unlikely to be regularly updated this could effect speed of operation, capacity etc Built for obsolescence = maintenance unlikely !materials and construction likely to be functional / manufacture likely to use the cheapest materials and processes because the product will be thrown away. Purchase price very low the user can afford to throw it away. Throwaway raises issues of waste -pollution and recycling. Design development is quicker accounting for changes in technology.	[4]	
Total [10]			

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