



General Certificate of Secondary Education
2011

Engineering

Paper 1

Assessment Unit 3

assessing

Engineering Technology

[GEE31]

MONDAY 16 MAY, AFTERNOON

**MARK
SCHEME**

			AVAILABLE MARKS
1	(a) Corkscrew Fan [2 × 1]	[2]	
	(b) Metal shopping trolley Wheelbarrow [2 × 1]	[2]	4
2	Hardwood – These come from deciduous or broad leafed trees Example – Oak, Mahogany/Beech etc. Application – High end furniture, window frames; kitchen utensils etc. [3 × 1]	[3]	
	Softwood – Come from coniferous trees which have needles rather than leaves. Example – Scots pine, Redwood; Whitewood etc. Application – DIY work. Mainly used for constructional work and simple joinery, skirting boards, furniture etc. [3 × 1]	[3]	
	Manufactured Board – These are timber sheets which are made either by gluing wood layers or wood fibres together. Example – Chipboard/Plywood; MDF; Hardboard etc. Application – Kitchen and bedroom furniture [3 × 1]	[3]	9
3	Match the appropriate picture with the correct definition [5 × 1]	[5]	5
4	(a) Appropriate feature mentioned – Accuracy; Repeats	[2]	
	(b) Can run continuously Quick Other answers considered [2 × 2]	[4]	
	(c) To check for any faults, visualise; Other answers considered	[2]	8
5	(a) (i) Cell production Production stages are split into individual components which are each made by a different production cell. Other answers considered	[2]	
	(ii) <i>In-line assembly</i> Most of the production line is automated. Unskilled labour is used mainly for assembly, with a small number of semi-skilled operators making sure there is a continuous flow along the production line. Other answers considered	[2]	
	(iii) <i>Flexible</i> A flexible workforce and flexible machinery Individual people are semi-skilled being able to do a variety of jobs Other answers considered	[2]	

			AVAILABLE MARKS
	<p>(iv) Concurrent This is where different stages of the design process can overlap. (One can start work before the other has finished which saves time) Other answers considered</p>	[2]	
	<p>(v) Just in time This removes the need for huge stockpiles of resources, saving money and space. Other answers considered</p>	[2]	10
6	<p>(a) Appropriate product named e.g. bicycle, mobile phone etc.</p>	[1]	
	<p>(b) (i) Appropriate stage of manufacture where control technology is used – cutting and assembly of materials</p>	[1]	
	<p>(ii) Relevant advantage mentioned – faster production</p>	[2]	
	<p>(c) (i) Appropriate modern material mentioned – carbon fibre, alloys, plastics;</p>	[2]	
	<p>(ii) Description of how this modern material has improved the characteristic of the product. Lighter product, which makes it faster. Easily repaired.</p>	[2]	8
7	<p>(a) (i) Robots can work 24/7, continuous; Other answers considered</p>	[2]	
	<p>(ii) Very accurate precise movements to produce a product. Other answers considered</p>	[2]	
	<p>(iii) Robotics can work much faster than humans e.g. robotic welding Other answers considered</p>	[2]	
	<p>(iv) Robots can work in areas that is unsafe for humans Other answers considered</p>	[2]	
	<p>(b) High setup cost (Negative answer) Other answers considered</p>	[2]	10
8	<p>(a) Manufacturing does not have to be done on site Details can be sent easily to the factory where the product is going to be made Other answers considered [2 × 2]</p>	[4]	
	<p>(b) In some cases a manufacturer needs to see the product and this may be far away Other answers considered</p>	[2]	
	<p>(c) Email, video conference; Other answers considered</p>	[1]	7

		AVAILABLE MARKS
9	<p>(a) Round section [1]</p> <p>(b) Can be bought in easily from catalogues Can be held in lathes vices without further work Does not need any machining to get ready for use Other answers considered [2 × 2] [4]</p> <p>(c) Turn down the bar on the lathe Undercut the bar for thread Part off the bar Use stock and die to thread Check the thread with a nut. Other answers considered [2]</p> <p>(d) Put the round section bar in the lathe Face off the end to make the bar flat Drill the bar to make the hole with a drill bit in the tailstock Part off on the lathe and clean up the burrs with a file Other answers considered [2]</p>	9
10	<p>(a) Appropriate product mentioned e.g. metal garden shed Impact the engineering industry has on that product with reference to design – designs can be modified easily. Customers can have an input on the type of design. [2] Impact the engineering industry has on that product with reference to production – faster production methods, through the use of robotics etc. [2]</p> <p>(b) Type – More skilled Size – Reduced/Smaller Other answers considered [2 × 2] [4]</p> <p>(c) Appropriate benefit stated – reduce costs – increase production – less waste; [2]</p>	10
Total		80