



General Certificate of Secondary Education
January 2012

Manufacturing
Paper 1
Assessment Unit 3
assessing
Manufacturing Technology
[GMA31]
TUESDAY 19 JANUARY, MORNING

**MARK
SCHEME**

1	(a) Ink cartridge, ream of paper (2 × [1])	[2]	AVAILABLE MARKS
	(b) Metal railings, woodworker's bench (2 × [1])	[2]	4
2	Tool/Equipment matched with the correct corresponding name. (6 × [1])	[6]	6
3	Safety Glasses/Goggles		
	Meaning: Safety glasses must be worn.		
	Process: When drilling a piece of wood/metal.		
	Ear Protection		
	Meaning: Ear protection must be worn.		
	Process: When machining a piece of wood.		
	Flammable Symbol		
	Meaning: Highly flammable.		
	Process: When using a solvent based adhesive/spray painting.		
	Dust mask		
	Meaning: A dust mask must be worn.		
	Process: When sanding/spray painting. (8 × [1])	[8]	8
4	(a) What is it going to be used for? Material manufacturing constraints. Transport constraints. Customer preferences. Other answers considered. (2 × [1])	[2]	
	(b) (i) Nylon Polystyrene PVC Other answers considered.	[1]	
	(ii) Appropriate product named with reference to answer (b)(i)	[1]	
	(iii) Granular materials flow. Quantities can be measured accurately. Reduced waste. (2 × [1])	[2]	6

			AVAILABLE MARKS
5	(a) (i)	Materials supply Materials control Process control Storage Stock control Marketing and mail shots Queries and searches Other answers considered.	[1]
	(ii)	Reduced ordering times Better process control Reduced labour/costs Reduced storage space Efficient marketing Other answers considered.	[2]
	(b) (i)	Mobile phone Internet WiFi Video conferencing FAX Other answers considered.	[1]
	(ii)	Speed Reduced lead times JIT Lower running costs Other answers considered.	[2]
	(c)	Customer satisfaction Better quality products Less returns Shorter order times Other answers considered.	[2]
	(d) (i)	Stock control is up to date. Other answers considered.	[2]
			[2]
			12
6	(a)	Designs can be changed easily They can be viewed in 3D They can be viewed from different angles (2 × [2])	[4]
	(b)	Data is put in, e.g. dimensions, and the product is manufactured using CNC machinery to make the particular customised product. Other answers considered.	[2]
	(c)	Better quality product More reliable product Other answers considered.	[2]
			8

		AVAILABLE MARKS
<p>7 (a) (i) Polymorph</p> <p>(ii) High quality finish Can be reused Easily moulded Quick to produce Cost effective Other answers considered. (2 × [2])</p> <p>(b) Advantage: Errors can be highlighted before manufacture. Other answers considered.</p> <p>Disadvantage: Work can be lost easily if the system crashes Other answers considered.</p>	<p>[1]</p> <p>[4]</p> <p>[2]</p> <p>[2]</p>	<p>9</p>
<p>8 (a) When designing products for manufacture: CAD package to show design ideas to the purchaser. [2] Other answers considered.</p> <p>To evaluate product design: Computerised testing to ensure safety. [2] Other answers considered.</p> <p>To ensure safety when manufacturing a product: Machine cut outs to ensure safe working. [2] Other answers considered. (3 × [2])</p> <p>(b) Process will be organised. Should run smoothly. Manufacturer has immediate access to current stock. Other answers considered. (2 × [2])</p>	<p>[6]</p> <p>[4]</p>	<p>10</p>
<p>9 (a) Weather proof Other answers considered.</p> <p>(b) Can be manufactured quicker Mistakes can be corrected easily. Other answers considered. (2 × [2])</p> <p>(c) Surface finish. Check that the letters are stuck on correctly to the acrylic backboard. Other answers considered.</p>	<p>[1]</p> <p>[4]</p> <p>[2]</p>	<p>7</p>

10 Employment Issues:

It can provide employment.

It can improve the level of expertise in the workforce.

Increased modern technology means a reduced need for labour. [5]

Other answers considered.

Effects to the environment:

It can cause environmental damage/emissions

Increased pollution/transportation of materials etc.

Waste materials are dumped/not recycled properly. [5]

Other answers considered.

3 points [5], 2 points [3], 1 point [1]

(2 × [5])

[10]

Total**AVAILABLE
MARKS**

10

80