



General Certificate of Secondary Education
2011

Manufacturing
Paper 1
Assessment Unit 3
assessing
Manufacturing Technology
[GMA31]
MONDAY 20 JUNE, AFTERNOON

**MARK
SCHEME**

			AVAILABLE MARKS
1	(a) Radio LCD TV [2 × 1]	[2]	
	(b) Metal shelving Ironing board [2 × 1]	[2]	4
2	Match the pictures with the appropriate name [5 × 1]	[5]	5
3	(a) Strong, rusts No Aeroplanes, ladders, drink cans Strong does not rust Yes Other answers considered [5 × 1]	[5]	
	(b) (i) Nitinol – It is one of a number of alloys that exhibit shape – memory characteristics. It can be made to remember a particular shape or length and return to it when a particular temperature or voltage is applied. Other answers considered	[2]	
	(ii) To continue and enhance product development Other answers considered	[2]	9
4	Appropriate product stated	N/A	
	(a) Appropriate description of the modern technology used.	[2]	
	(b) Explanation of how modern technology is of benefit in the manufacture of the product stated in part (a).	[2]	
	(c) The workforce has become more skilled Other answers considered	[2]	
	The working environment has become more automated Other answers considered	[2]	8
5	(a) Computer Integrated Manufacture	[2]	
	(b) Reduced lead times Other answers considered	[2]	
	(c) High set up costs Other answers considered	[2]	
	(d) email Video conferencing Other answers considered [2 × 1]	[2]	8

			AVAILABLE MARKS
6	(a) (i)	Quality control is achieved by establishing the expected quality standards required by the customer and then planning to achieve those standards. As the product is manufactured it is inspected and if necessary corrective action is taken to ensure that the expected quality standards are met. Other answers considered [2]	10
	(ii)	Automation – The controller of an automated machine is normally a computer. Automated machines can be interconnected to form an automated production system. Other answers considered [2]	
	(b) (i)	Appropriate product chosen and an appropriate quality check mentioned. [2]	
	(ii)	The product will work properly and safely Other answers considered [2]	
	(iii)	Products can be manufactured quickly Other answers considered [2]	
7	(a)	Control technology refers to machinery being controlled by computers. Other answers considered [2]	8
	(b)	Staff need training Space for the technology High set up costs Other answers considered $[2 \times 2]$ [4]	
	(c)	More pollution Other answers considered [2]	
8	(a) (i)	Database – Contains information on materials	8
	(ii)	Spreadsheet – What stock has come in and sold etc.	
	(iii)	Internet – The manufacturer can source cheap materials on line. Other answers considered $[3 \times 2]$ [6]	
	(b)	Staff training Other answers considered [2]	

		AVAILABLE MARKS	
9	(a) Quick Accurate Semi-skilled operators can be used Uniform products Other answers considered [2×2]	[4]	
	(b) Can work continuously without a break. No need to make an expensive jig Can easily be reprogrammed for other operations Other answers considered	[2]	
	(c) To speed up production To minimise mistakes To standardise quality, so that semi-skilled workers can be used Other answers considered [2×2]	[4]	
	(d) CNC machines can accurately position tools on work The machines produce parts at high speed Other answers considered	[2]	12
10	(a) Reduced labour Reduced wastage of materials Other answers considered [2×2]	[4]	
	(b) Appropriate examples stated outlining the improved characteristics [2×2]	[4]	8
Total			80