



General Certificate of Secondary Education
January 2011

Engineering
Paper 1
Assessment Unit 3
assessing
Engineering Technology
[GEE31]
MONDAY 24 JANUARY, MORNING

**MARK
SCHEME**

			AVAILABLE MARKS
1	(a) Winch Jack [2 × 1]	[2]	
	(b) Car exhaust Metal trolley [2 × 1]	[2]	4
2	To tighten components, or to grip components To cut metal and plastics Flat file Pop rivet To stop a nut loosening due to vibrations Split pin [6 × 1]	[6]	6
3	Micrometer – Used to measure very precise measurements [2 × 1] Dividers – Used to mark out circles or arcs [2 × 1] Bevel – Available at fixed angles of 45 degrees, or as an adjustable tool for marking any angle [2 × 1] Ball pein hammer – Used for rounding rivets and other pieces of metal. [2 × 1]	[8]	8
4	(a) Appropriate traditional method mentioned Appropriate use of CAM [2 × 1]	[2]	
	(b) Faster More accurate Other answers considered [2 × 2]	[4]	
	(c) High set up cost Other answers considered	[2]	8
5	(a) The ability to keep in touch electronically via email etc. Other answers considered	[2]	
	(b) (i) Video conferencing Other answers considered	[1]	
	(ii) Reliable, fast, easy/quick to get in contact. Other answers considered	[2]	
	(iii) People need training Both parties need the appropriate equipment Other answers considered	[2]	7

			AVAILABLE MARKS	
6	(a)	Robotics Automation re. production lines Other answers considered [2 × 1]	[2]	6
	(b)	Products are made more accurately Quality control checks are in place monitoring and controlling production. Other answers considered [2 × 2]	[4]	
7	(a)	Polymorph Other answers considered	[1]	13
	(b) (i)	Easily moulded Can be remoulded Other answers considered [2 × 2]	[4]	
		(ii)	To develop better characteristics and properties of products Other answers accepted	
	(c) (i)	Cost To see if there are any faults Other answers considered [2 × 2]	[4]	
		(ii)	Staff need training to be able to use the machinery Other answers considered	
8	(a)	To ensure that the products work fine To ensure that they are safe to use Other answers considered [2 × 2]	[4]	6
	(b)	Robotic measuring systems Other answers considered	[2]	
9	(a)	When a metal is being bent it will work harden. Annealing will soften the metal so that it does not crack or break when bending. Other answers considered	[2]	10
	(b)	Rub soap on the aluminium. The soap will turn black at the correct annealing temperature. Other answers considered	[2]	
	(c)	Aluminium will melt Other answers accepted	[2]	
	(d)	Wear the appropriate safety apron Wear correct eye protection Make sure the flame is pointed towards brazing hearth Use tongs to pick up hot metal Other answers considered [2 × 2]	[4]	

- 10 (a) (i) (ii)** Appropriate engineered product outlined and stage picked
The appropriate impact new technology has on that particular stage. [2 × 2] [4]
- (b)** Automated production lines
Robotics
Other answers considered [2 × 2] [4]
- (c)** High set up cost
Other answers considered [2]
- (d)** So that the production of a product runs smoothly
Other answers considered [2]

Total

**AVAILABLE
MARKS**

12

80