

Examiners' Report/  
Principal Examiner Feedback

Summer 2015

Pearson Edexcel GCE in Engineering  
Unit 6931\_01  
Engineering Materials, Processes and  
Techniques

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## **UNIT 6931**

### **Engineering Materials, Processes and Techniques**

#### **Question 1**

In most instances candidates were able to state the class of material. The responses regarding the significant property of the materials were not as good in that candidate responses were generic and not very technical. For example, the examiner was looking for words such as malleable or chemically resistant, etc., and in many cases these were not presented. 'Strong' was another term often used but not credited with marks, as the examiner was looking for 'strong in compression or tension'. There were a number of repeat answers in the significant property element of the answer which were not credited.

#### **Question 2**

This question tended to be quite well answered by the majority of candidates. However, in the precaution/control element candidates did repeat themselves in a number of instances. If this happened then credit was only awarded once.

#### **Question 3 (a) (i) (ii)**

In this question the majority of candidates scored well. They were able to identify a suitable material for the frame of the electrically powered golf trolley, with an explanation for the reason that material had been identified.

#### **Question 3 (b) (i) (ii)**

In this question the majority of candidates scored well. They were able to identify a suitable material for the terminals that connect the battery to the motor, with an explanation for the reason that material had been identified.

#### **Question 3 (c) (i) (ii)**

In this question the majority of candidates scored well. They were able to identify a suitable material for the tread on the front wheel, with an explanation for the reason that material had been identified.

#### **Question 3 (d) (i) (ii)**

In this question the majority of candidates scored well. They were able to identify a suitable material for the casing that supports the battery, with an explanation for the reason that material had been identified. A number of candidates incorrectly identified a material for the battery casing, which was not asked in the question.

**Question 4 (a)**

The majority of candidates were unable to identify an advantage of oxy-acetylene welding. Many candidates described the process of creating a weld using oxy-acetylene welding equipment, when the examiner was looking for answers that included the portability and wide temperature range provided by this process.

**Question 4 (b)**

Again this question was answered poorly by candidates, with only 6% of answers achieving the maximum mark.

**Question 4 (c)**

In some cases, candidates were able to demonstrate two advantages of using MIG welding against oxy-acetylene welding.

**Question 5 (a)**

Many candidates were able to give two reasons for using the compression moulding process when used to produce electrical sockets and light fittings.

**Question 5 (b)**

Many candidates were able to give two disadvantages for using the compression moulding process.

**Question 5 (c)**

Candidates were able to describe using notes and sketches, to different levels of expertise, the compression moulding process.

**Question 6 (a)**

Many candidates were able to describe with the aid of sketches, either the horizontal or vertical milling process. However there were a small number of candidates who described the centre lathe turning process.

**Question 6 (b)**

The majority of candidates were able to describe why coolant is used during the milling process.

**Question 7 (a)**

Candidates responded well to this question, identifying appropriate justification why sand casting is used in producing the body of the vice.

**Question 7 (b)**

A large number of candidates were able to give a detailed explanation of the sand casting process to produce the body of the vice.

**Question 7 (c)**

The majority of candidates scored well and correctly identified why the jaws are made from carbon steel.

**Question 7 (d)**

Candidates did not score well with this question. Very few answers explained why the buttress thread has a flat face – it allows the vice to be fastened tightly but allows for quick release when required.

**Question 8**

With varying degrees of expertise, candidates were able to produce suitable designs enabling the golf trolley to support a bracket which could hold an umbrella.

**Question 9**

Candidates were in the main able to evaluate the difference between the two materials as to their suitability for the golf trolley. In conclusion, they were also able to recommend one of the materials with detailed argument. A number of candidates referred to different materials not in the question provided. As this question assesses the quality of written communication, candidates should be encouraged to write in sentences and paragraphs, and not provide answers in tabular form.

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