

Examiners' Report/  
Principal Examiner Feedback

January 2012

Principal Learning

Engineering  
EG301 Paper 01

Investigating Engineering Business  
and the Environment

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## **EG301\_01**

### **Investigating Engineering Business and the Environment**

There were 130 entries this series, which is comparable to the entry in January 2011. The overall level of achievement was higher than in previous series, with re-take candidates forming the largest percentage of the entry for the first time.

#### **Section A**

##### **Question 1**

Candidates tended to have an understanding of the different scales of production, with a large percentage being able to identify the correct answer for this question.

##### **Question 2**

Almost all candidates were correctly able to identify that a satellite for a GPS system would be developed by the aerospace sector. The understanding of the scope of the different sectors has improved over recent series.

##### **Question 3**

The majority of candidates were correctly able to identify that irrigation systems would be within the remit of the agricultural sector.

##### **Question 4**

The vast majority of candidates were able to recognise bad practice when speaking to a group, perhaps as a direct result of presenting their own findings to others.

##### **Question 5**

Over half of the candidates identified that a workshop floor should be cleaned by washing on a weekly basis as a minimum.

##### **Question 6**

A significant proportion of candidates were not able to identify that statistical control is a quality assurance method, with the majority selecting one of the quality control techniques instead. This appears to be an area of confusion.

### **Question 7**

Candidates tended to be unaware that a charity is controlled by a board of governors. The management and structure of organisations tends to be an area where candidates continue to lack the depth of knowledge required.

### **Question 8**

The majority of candidates were able to show a good understanding of the benefits of using software for project planning.

### **Question 9**

Many candidates were able to correctly identify that a medium sized enterprise would have upto 250 employees.

### **Question 10**

Costing methods continue to cause some misunderstanding for candidates, with only half of the candidates being aware that job costing considers both direct and indirect costs.

### **Question 11**

Candidates were generally aware of the term investment appraisal.

### **Question 12**

Candidates were able to generally show a good awareness of the function of production planning and control with over 75% correctly answering the question.

### **Question 13**

There has been a steady improvement in the quality of answers for calculation questions, with almost 75% correctly identifying the value of the equipment following its depreciation over 3 years as being £51 200.

### **Question 14**

Candidates were comfortable identifying the risks associated with soldering, with almost all candidates gaining one mark. This could be as a result of firsthand experience of electronics through other units.

### **Question 15**

The Gantt chart seems to be familiar to the majority of candidates, with a high proportion correctly identifying the chart.

### **Question 16**

Costing methods continue to cause issues for candidates, with a significant number of candidates unable to identify process costing from the definition given.

### **Question 17**

It was pleasing to note that the majority of candidates had a secure understanding of the process of performing a risk assessment.

### **Question 18**

Awareness of the various different legislations identified within Learning Outcome 4 continues to be generally weak, with only some candidates correctly identifying the maximum fine which can be imposed for breaching the Fire Precautions Act 1971.

### **Question 19**

As with the question regarding production planning and control, the majority of candidates were able to identify the main purpose of budget monitoring.

### **Question 20**

Candidates seemed to be less familiar with flow charts than Gantt Charts, with less than two thirds correctly identifying the diamond shape as being a decision process.

## **Section B**

Section B consists of short to medium answer questions. The nature of these questions tends to allow candidates access to 1 or 2 marks for demonstrating a basic understanding of the subject, with the higher marks being awarded to those with a thorough knowledge of the subject.

### **Question 21**

Most candidates performed well with this question, with many identifying both advantages and disadvantages of offering in-house training. In many cases advantages were that training could be tailored to needs, and disadvantages involved costs.

## **Question 22**

Candidates achieving marks with this question tended to do so through general knowledge rather than understanding. Only a small number of candidates achieved full marks, suggesting that this is one area of the specification which is not understood as well as others. Where marks were gained this tended to be as a result of indicating that knowledge and experience of manufacturing one product could lead to improvements with others.

## **Question 23**

The majority of candidates had a better understanding of fixed and variable costs than in previous series, although candidates who did not to achieve full marks did so as a result of not making reference to batch production as was stated in the question.

## **Question 24(a)**

Knowledge and understanding of network diagrams is an area where many candidates are weaker. Little over a third of candidates were able to correctly identify the earliest start date of the activity as being day 7, despite this being stated on the diagram.

## **Question 24(b)**

As with Q24(a) this question was answered poorly, although a higher proportion got this question correct than Q24(a), suggesting that in some cases candidates had not read the diagram or question correctly for Q24(a).

## **Question 24(c)**

Identification of the critical path was simple not attempted by 10% of candidates, with a significant number of those who did attempt suggesting that activities A, D, M and N form the critical path (ie through the middle). Only 23% of candidates correctly identified the path as being A C G H L and N.

## **Question 25(a)**

The majority of candidates scored two marks or fewer in the question, with common responses being that a public limited company has shares on the stock exchange, which can be bought by anybody whilst the share holders of a private limited company are restricted and cannot be openly sold. A common misconception was that a public limited company was owned by the government.

### **Question 25(b)**

The majority of candidates who scored marks for this question did so by stating that in a private limited company the share holders had greater responsibility for decision making, and that they would gain a larger share of any profits. Some more able candidates were able to state the benefit of limited liability for the share holders.

### **Section C**

This section comprised of two longer answer questions worth a total of 20 marks. Performance across the questions was variable, with candidates tending to perform better in Q26 than in Q27.

### **Question 26(a)**

Candidates did not have a good concept of production capacity, with those who did achieve marks doing so because they had a concept of manufacturing being limited by the physical size of premises and that to increase production there would either need to be expansion or space readily available already. Only a small number of candidates achieved full marks for this question.

### **Question 26(b)**

Candidates had a generally good awareness of the environmental and economic benefits and disadvantages of electrically propelled cars. In many cases candidates achieved near to full marks by commenting on the lack of local pollution from cars being an advantage whilst limited range and lack of refuelling points were cited as disadvantages.

### **Question 26(c)**

Statements such as reduced need for extraction, reducing waste in landfill and the need for less energy to recycle materials than process new materials were common amongst candidates. Some referred to a lower carbon footprint from materials. In cases where candidates did not achieve full marks this was as a result of making reference to economic benefits which was not within the scope of the question, emphasising that exam technique is an area for development for some candidates.

### **Question 27**

The knowledge and understanding of RIDDOR continues to be generally weak when compared to other safety regulations such as COSHH. Candidates did not perform particularly well in this question with none achieving full marks.

Candidates who did score marks did so by making reference to the legal requirement to report accidents; that they need to be recorded in an accident book and that failure to do so could result in prosecution and fines.

Some candidates gained further marks by identifying reportable incidents and making reference to improved working practices as a result of incidents.

Many candidates saw this question as an opportunity to write everything they knew about risk assessments, or the Health and Safety at Work Act. In many cases, even extended answers did not include material that was creditable.

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