



Pearson

Examiners' Report

Principal Examiner Feedback

Summer 2017

Pearson Edexcel GCSE
In Engineering/Manufacturing (5EM03)
Paper 3F Mechanical Automotive

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Publications Code 5EM03_3F_1706_ER

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General Comments

Overall, the two sections within this paper produced a good range of responses.

This year entries were from a very low number of centres which appeared to have high ability learners who often gave extended responses to questions. Despite advice in Examiners Reports some learners, however, based their responses on an incorrect context and therefore did not gain marks. Disappointingly some seemed to base their answers on previous mark schemes associated with previous papers. The more demanding questions, including those at the end of Section B, were generally answered well by this cohort although some learners did not attempt some of the questions.

Again, as in previous years, it was extremely pleasing to see that the majority of learners did attempt all questions and empty spaces were kept to a minimum throughout the paper.

Learners seem to have benefited from being taught examination skills and techniques, as generally speaking they did seem to read the questions properly, and 'describe', 'explain' or 'evaluate' questions were answered with appropriate technique with short or extended writing. This was usually the case in Q14 where learners are tested on their quality of written communication (QWC) and would therefore gain access to the higher marks.

Section A

Question (1)

The majority of learners correctly identified the products belonging to the Mechanical sector in part (a) and all correctly answered part (b) identified the products belonging to the Automotive sector.

Question (2)

Although the majority of learners correctly identified both tools used in the manufacture of Mechanical/Automotive products in part (a) there was, however a number of learners who were unable to identify the 'socket set screw', often referring to it as a 'bolt'. Also, in part (b), many learners were unable to fully describe the use of the 'ring spanner'.

Question (3)

A straightforward and generally well answered question often, nearly 90%, achieving full marks.

Question (4)

Strangely this year there were varied responses to part (a) although many included products used in the pre-release materials for past papers. Again this year, this question required two responses and it was pleasing to see that learners had not responded with the excluded product, a bolt cropper. Many did seem to get confused and some struggled to name two finishing processes. Some gave another process. Part (b) was either answered very well or they found it difficult to write about quality control techniques as a linked response.

Question (5)

In the main, for part (a), learners gave answers based upon their knowledge of CAM. Part (b) gave a good opportunity for those who knew about the disadvantages of introducing CAM to gain both marks. Many struggled to gain full marks for part (c) as they didn't appear to know about the use of PLCs.

Question (6)

Many were able to describe the term Wi Fi in part (a) (ii), with over 90% achieving maximum marks for the whole of part (a). In part (b) it was very disappointing that learners found it difficult to explain three reasons why a manufacturer would use embedded computers, not knowing about the features of embedded computers and in particular their dedicated function.

Question (7)

Centres are reminded that the paper is ramped in difficulty and the latter questions in each of the two sections are aimed at the more able learners. This question required an ability to provide specific responses, by drawing upon specialist knowledge of using information and data handling systems in a context of benefits to design and production planning. The answer needed a linked response and many were unable to achieve this. Part (a) was answered better than part (b) where many answers were restricted to scheduling type activities and features of production planning.

Section B : Based upon the 'mass produced 7mm capacity bolt croppers' pre-release material

Question (8)

There is an opportunity for all learners to display their knowledge and understanding of the pre-release product through sketching and notes relating to the functions of various parts of the 7mm capacity bolt croppers. In the main all three parts were well answered and it was obvious that the centres had let the learners investigate the product in a practical manner. Learners were able to effectively describe, using notes and sketches, the function of the handle covers, jaws and the jaw to handle link. The vast majority of learners had clearly undertaken research based upon the pre-release material; those that provided incorrect responses often confused the requirement of the question, which was about function, with a need to state all they knew about the product and described the materials used and gave manufacturing details, all not asked for. Whilst it was very pleasing to see that the vast majority of learners were producing both notes and sketches centres and learners are reminded that both notes and sketches are required to be able to access full marks. Some learners only provided notes and therefore limited the mark they could gain. Overall over 80% of learners gained maximum marks for this question.

Question (9)

Most learners gave correct answers for parts (a) (i) and (ii). The correct sequence of stages is clearly outlined in the specification and centres should refer to it. Parts (b) and (c) were also well answered. Often responses in part (c) gained the marks from a range of low level responses rather than a detailed linked response; although many good linked responses were also seen.

Question (10)

Part (a) was well answered, with those achieving at the lower end doing as well as the higher achievers as there were few materials that would be suitable for the handle covers of the 7mm capacity bolt croppers. Part (b) (i) was answered well by most as there was a wide range of process that could be named. For Part (b) (ii) many did struggle to achieve the full three marks available. Part (c) was answered quite well.

Question (11)

This was one of the poorly answered questions on the paper. Part (a) proved difficult for some learners as they were not able to give an extension to their explanation of automation. In Part (b) there were many generic type response that attracted the mark for identifying the example of automation but were unable to follow this through with a linked response.

This question, particularly parts (b) (ii) and (iii) appeared to be a dominant part of the grade individual learners obtained.

Question (12)

Part (a) (i) often attracted reward able answers. Those who were unable to answer this first part also struggled to gain any marks for part (a) (ii) and those who did answer often didn't understand the context of the efficiency of the production process beyond faster and quicker. In part (b) often responses had one answer about the global environment or others with two low responses attracting two marks. One interesting response was about 'using technology to predict the weather' which was totally out of context of the question.

Question (13)

This question proved very challenging for most learners. More emphasis or focus was required on impact as asked for in the question. Where this was achieved the answer was appropriate and gained three or four marks.

Question (14)

This question looked at QWC as well as 'the manufacturers' use of monitoring and controlling energy consumption'. Where learners scored well, there were coherent sentences produced relating to their discussion clearly linking the use of technology in relation to either controlling or monitoring energy use. Some learners used bullets points to respond to this question and therefore failed to score highly on QWC. There were one or two excellent answers to this question.

