



Pearson

Examiner's Report

Principal Examiner Feedback

Summer 2017

Pearson Edexcel GCSE
In Engineering/Manufacturing (5EM03)
Paper 3E (Electrical & Electronics)

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General Comments

Only 9 students took this paper so difficult to come to clear conclusions.

Overall, this paper produced a good range of response to the questions, the majority of learners attempted all questions and this year empty spaces were again noticeable as the questions ramped up in section B.

Lower ability learners gave less generic responses to questions, such as 'quick/fast/cheap' which gained limited marks. The more demanding questions, especially at the end of Section B, were difficult for many learners and consequently a proportion gave poor responses. The question relating to Embedded computers was poorly answered and reflects limited knowledge of how they affect systems. Most learners have demonstrated being taught examination skills and technique, some of the low ability still had problems understanding the questions in section B. It was noticeable that a number of learners had little knowledge of electronic equipment, components and their function in circuits.

Section A

Question (1)

The majority of learners correctly identified the products belonging to the Electrical and Electronics sector in Part (a) and the Process Control and Computer sector in Part (b).

Question (2)

The majority of learners failed to identify the equipment. Part b) was well attempted with the majority of learners gaining some marks for the electronic component function.

Question (3)

A straightforward and generally well answered question with a high proportion of learners gaining full marks.

Question (4)

Good responses to (a)i included products used in the pre-release materials for past papers or specimen assessment materials. a)(ii) generally well answered. a)(iii) was answered well by most getting 1 mark. In Part b) , learners generally provided an appropriate quality control technique.

Question (5)

The majority of learners scored reasonably well for Part a) giving reference to functions of CAM, b) most got a disadvantage of changing to CAM in b)ii) most picked up two benefits of PLC's.

Question (6)

Part a)i was a reasonable response, many gave good examples to show their understanding, a)ii Good response to describing WIFI. Learners answered Part b) poorly, the concept of embedded computers was not understood.

Question (7)

This question required an ability to provide specific responses, by drawing upon specialist knowledge. Learners were asked to provide answers that related to the use of information and data handling systems in Design and Production planning. Part (a), was poorly answered question, with some learners providing generic responses, such as, quantity of materials. Part (b) was related to production planning, most gave low responses similar to the mark scheme.

Section B Based upon the 'external hard drive' pre-release material**Question (8)**

A reasonably well answered question for all parts. Learners were able to effectively explain, using notes and sketches, the function of the probes, outer case and the selector switch. The vast majority of learners had clearly undertaken some research based upon the pre-release material. Some responses with drawing failed to annotate 3 points on the drawing so not achieving full marks.

However, it should be noted that full marks can only be attained with both notes and sketches; some learners omitted one or the other.

Question (9)

For Part a)(i) & (ii), the correct sequence of stages is clearly outlined in the specification and centres should refer to it, many learners gaining full marks. Part b) looked at the marketing stage and was again generally well answered with maximum marks gained from low responses. Part c) looked at the packaging and dispatch stage and was answered well and with mainly low responses.

Question (10)

Part (a) showed that many had done research on external hard drives and answered well.

Part (b)(i) elicited a varied response; answers that gained the full 3 marks were few, however most could identify other production processes. For Part (b)(ii), those learners that had studied surface mount technology were able to offer some detailed responses. Most got marks for low responses. For Part (c) those who studied modern materials used in manufacturing were able to offer detailed responses.

Question (11)

For Part (a) (i) simple responses were evident, but generally understood the role of Automation. Many learners gave correct answers to b)(i), but as low responses for use of automation in the production of external hard drives, with few achieving maximum marks. In b)(ii) most could give a disadvantage of automation and b)(iii) most gave a benefit to the consumer

Question (12)

This question was looking at Modern Technology and impact on Safety and efficiency and saw good responses and some full marks in a)i) and a)ii). In b) good response to the advantages on the global environment.

Question (13)

This question asks about the impact of ICT on material supply and control stage. Many attempted the question and achieved some low response marks with reference to re-ordering of materials. As a ramped question, the few more able would have covered and identified other key points.

Question (14)

A number of learners sitting the examination paper this year attempted this final question. This is pleasing as it is good examination technique for learners to attempt all questions, even if the response is an informed or 'educated' guess. Responses indicated that a number of students did understand how manufacturers control and monitor energy consumption at a basic level. As a ramped question it clearly differentiates and the marking scheme focuses on ensuring more than two issues are developed to gain full marks.

