AQA

TECH LEVEL
ENGINEERING

Materials Technology and Science
Report on the Examination

TVQ01016/TVQ01018/ TVQ01019
June 20017

Version: 1.0

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General Comments

The examination performed as expected. Most students demonstrated at least a basic understanding of the unit's content. Successful students could apply this understanding to the contexts presented. They took time to read the questions and the most successful students also demonstrated an ability to analyse and evaluate. The least successful students found it difficult to apply their understanding.

Section A

Questions One to Ten (multiple-choice)
All multiple-choice questions performed as expected, with most students gaining at least 5 of the 10 marks available. Questions 1, 4 and 5 proved to be the most difficult. Questions 1 and 5 were quite technical so, unsurprisingly, this caught one or two students out.

Question Eleven
This question was well received by this cohort of students. However, the major difficulty arose in naming the class of material that rubber belongs to – an elastomer.

Question Twelve
A large number of this cohort understood the process of hardening high carbon steel by heating then quenching. A disappointingly low number appeared not to of heard of tempering though. The sections on polymers were reasonably well answered.

Question Thirteen
Successful students understood the use of and application of Ohm's Law. The power equation was quite well received by this cohort also. It was encouraging to see the manipulation of the variables, by use of algebraic transposition, appears to be a well-honed skill developed by this group of learners.

Question Fourteen
Overall, this section on transfer of energy was disappointingly answered. Many of the cohort had not heard of laminar flow in a fluid control system and the terms "vortex" and "separation point". However, the section on heat conduction provided some better answers.

Section B

Question Fifteen
Again, this section, was about energy transfer; in particular the use of the gas laws. Some students did get full marks, but they were in a significant minority. Some of the problems appeared to be: the use of the thermodynamic temperature scale; transposition of equations with four or more variables and the idea of a fluid gaining thermal energy when being compressed.

Question Sixteen
This question was well-answered by this cohort with a good proportion of students gaining more than half-marks. The properties of materials and engineering stress were given good treatment here by this group of learners – very encouraging.

Question Seventeen

A well-answered question concerning the corrosion of engineering metals. Many of the cohort knew about corrosion processes and their chemistry and sound knowledge was in evidence of how corrosion can be inhibited or stopped. Some very encouraging answers given here.