Tech-level Engineering

Unit 1 Materials Technology and Science
Report on the Examination
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General Comments

The examination performed as expected. Most learners demonstrated at least a basic understanding of the unit's content. Successful learners could apply this understanding to the contexts presented both analytically and scientifically. The most successful learners appeared to read and understand the questions thoroughly and produce sound answers that highlighted their knowledge and understanding. The least successful learners found it difficult to apply their knowledge and understanding to the questions posed.

Section A

Questions One to Ten (multiple-choice)

All multiple-choice questions performed as expected, with most learners gaining at least 5 of the 10 marks available. Questions 2 and 7 proved to be the most difficult. Questions 1, 5 and 9 appeared to be well answered by this cohort of learners.

Question Eleven

This question was, again, well received by this cohort of learners. However, the major difficulty arose from knowing which class of material Titanium came from. The vast majority of learners picked-up some marks for their knowledge of the uses of engineering materials.

Question Twelve

A significant proportion of this cohort didn't appear to recognise what the significant points on a phase diagram are. On the positive side, a high percentage of this group knew what casehardening was and the process of achieving it.

Question Thirteen

Many of the descriptions of how a diode worked missed the fundamental point of allowing current flow in only one direction. Many of the learners limited their descriptions and explanations to the LED. The work on electromagnetic induction was much better received by the learners.

Question Fourteen

Overall, this section on transfer of energy was disappointingly answered. Many learners had not heard of latent heat of fusion and did not appear to be conversant with the units of thermal energy and power. Many of the entrants, mistakenly, thought of a radiator as a heat pump.

Section B

Question Fifteen

Many learners had limited experience in dealing with engineering equations and their manipulation, units and calculation. Many didn't appear to understand the symbols for a change in quantity etc. However, the materials' properties section was very well-received with many learners taking the full three marks.

Question Sixteen

This question was well-answered with a good proportion of learners gaining more than half-marks. It was good to see that many had had exposure to this area of the specification.

Question Seventeen

Both parts of this question were quite well-answered. Some good use of technical / engineering terminology was in evidence; for example, dislocations, ambient temperature, hardness, brittleness, ductility etc. The team were quite impressed by some of the highly technical responses garnered here.