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TECH-LEVEL
ENGINEERING

Mathematics for Engineers J/506/5953
Report on the Examination

TVQ01019, TVQ01018, TVQ01016
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General Comments

This paper and its mark scheme were written with full adherence to the specification.

Section A

Question One

Many of the students didn't appear to recognise that the shape was a cuboid – 6 sides with 3 different side dimensions. Many of the students rounded their work too early in the calculations; this brought about errors in the final answer.

Question Two

The section on Young's Modulus was rather poorly answered in this series; which was surprising, as historically most past students have had good exposure to stress, strain and Young's Modulus calculations and thus answered questions on this subject quite well.

The answers to the quadratic equation question were generally well-answered.

Question Three

This question was based around use of the cosine rule. The question was quite well-answered across the cohort of learners showing some good teaching had taken place. Most of the cohort recognised it was a cosine rule problem; however, a minority of the students tried to use the sine rule to answer it.

Question Four

This question asked the students to convert between Cartesian and polar coordinates. This was generally well-answered and well-presented work.

Question Five

The calculations in this question were well-answered. Students were also asked to give two examples of where statistics can be used in quality assurance methods. Many students appeared to have some knowledge of the use of statistics in the engineering industry as there were some good, in-depth responses given. Conversely, a significant number gave very limited responses to this part of question 5.

Section B

Question Six

This question was about graphs and determining information from them. A minority of the learners put time on the dependent variable (y-axis) axis. Some of the learners didn't label their axes at all and therefore did not score any marks for this. Many of the entrants knew the significance of the gradient / slope of the line and could determine when the wear-rate was slowing down.

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Question Seven

This question was predominantly about areas, volumes and density. Many of the students were used to the formulae needed to solve the problem. The real issues came where some of the learners struggled to convert between mm^3 and m^3 etc. Generally, the transposition of formulae was quite good.

Question Eight

This question related to finding the values of the two variables in simultaneous equations. Overall, this was a well-answered section showing good understanding and application. Very encouraging.

Question Nine

This final question was based around the calculus; integration in particular. The question required calculation of a definite integral and an explanation of this what the calculation represented. Generally, this was poorly answered.

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Mark Ranges and Award of Grades

Grade boundaries and cumulative percentage grades are available on the Results Statistics page of the AQA Website.

Converting Marks into UMS marks

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UMS conversion calculator