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Tech-level Engineering

Unit 3 Mathematics for Engineers
Report on the Examination
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Section A

Question One

Many of the learners confused radius and diameter to obtain the wrong answers. It appears to have been the case that some of entrants didn't look at the image that formed part of this question. Many didn't realise or think to use Pythagoras' theorem to help answer this question.

Question Two

It was quite apparent that most learners had some exposure to logarithms and their manipulation. However, many of the group simply wrote the answers down, with no workings shown, therefore, marks were lost because of this.

Question Three

Overall, this area of the specification was well-answered with most of the working shown by the learners and some good scores resulting.

Question Four

Vector addition didn't appear to cause too many problems. Some good answers were recorded.

Question Five

Again, on the whole another soundly answered question with most of the learners recognising the mean and the modal value of the sample. The standard deviation calculation was somewhat less well-answered.

Question Six

Many of learners had limited experience in dealing with engineering applications of integration – in particular, definite integrals. Many appeared not to be able to apply the list of standard integral to this problem and calculate the ensuing answer.

Section B

Question Seven

Many learners didn't appear to be able to reduce the vector diagram – figure 4 – into its *x* and *y*-axis components and then apply vector addition to complete the process of finding the resultant vector. However, some did try to use the sine and / or cosine rules with limited success.

Question Eight

There were some reasonably good attempts at this question with a number of the learners understanding the process of construction of cumulative frequency diagrams. However, a number of the group confused cumulative frequency charts with histograms.

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Question Nine

It was obvious that, on the whole, learners had had some exposure to differentiation, its uses and the process of calculating differentials. Many of the learners confused the units for angular velocity and acceleration with those of linear velocity and acceleration. Overall, there were some sound answers here.