

STEP II, 2018, Q5 EC

Of the pure questions this was the one that attracted the poorest responses in general, with a significant proportion of attempts scoring 0.

In the first part of the question the majority of candidates did not include the constant of integration and so did not produce a fully justified solution. The expansion and substitution in the second part of the question was done well in general, although many candidates attempted to expand the e^{-x} as well as the $(1 - e^{ax})$, after which they were unable to complete the integral. In many of these cases there were then unjustified jumps to the series expansion found in part (i).

Answers to part (iii) were generally much better than part (ii), although some substitution errors were seen. Most of the marks lost in this part were because candidates failed to spot the connection with the previous part. It is worth noting that many candidates did not attempt part (iii), having failed to complete part (ii) successfully. It is likely that some additional marks could have been scored by these candidates had they attempted this final part.



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