

STEP II, 2024, Q6 EC

Question 6

A large number of attempts at this question were seen and many candidates were able to produce good solutions.

Part (i) was answered well, although a number of candidates did not select the correct base case. Several solutions did not give sufficient detail in the proof to gain full credit however. Since the required form is known, it is important that steps in the solution are shown clearly.

In part (ii) many candidates started by calculating some of the terms and then attempted to spot a pattern, or match the terms to the desired result. To gain full credit a solution that showed the form of the general term of the binomial series expansion was required. In a small number of cases combinatorial coefficients with non-integer arguments were used, but no explanation was given of the meaning of this notation.

In part (iii) a number of candidates again did not write down the binomial coefficients and used pattern spotting. In general, candidates who had successfully answered part (ii) were also successful in part (iii).

Some good solutions to part (iv) were seen, but often there was insufficient detail in the solutions to gain full credit.



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