7 **(a)** Find the number of different arrangements of the 10 letters in the word ZOOLOGICAL in which the three Os are together and the two Ls are **not** next to each other. [4]

(b) Find the number of different arrangements of the 10 letters in the word ZOOLOGICAL in which there are exactly 5 letters between the two Ls. [3]

Two letters are chosen at random from the 10 letters in the word ZOOLOGICAL.

(c) Find the probability that these two letters are different. [3]

Additional page

If you use the following page to complete the answer to any question, the question number must be clearly shown.