3. In this question, the function INT(X) is the largest integer less than or equal to X.

For example,

$$\text{INT}(5.7) = 5$$

$$\text{INT}(8) = 8$$

$$\text{INT}(-2.3) = -3$$

Consider the following algorithm.

Step 1 Input N

Step 2 Calculate $A = N \div 10$

Step 3 Let $B = \text{INT}(A)$

Step 4 Calculate $C = B \times 10$

Step 5 Calculate $D = N - C$

Step 6 Output D

Step 7 Replace N by B

Step 8 If $N = 0$ then STOP, otherwise go back to Step 2

(a) Complete the table in the answer book, using $N = 4217$, to show the results obtained at each step of the algorithm.

(4)

(b) Explain how the output values of the algorithm relate to the original input N, where N is any positive integer.

(2)

(Total for Question 3 is 6 marks)

3. *You may not need to use all the rows in this table.*

It may not be necessary to complete all boxes in each row.

N	*A*	*B*	*C*	*D*

Outputs: _____

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

Question 3 continued

(Total for Question 3 is 6 marks)