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7. A bag contains n marbles of which 7 are green.

From the bag, 3 marbles are selected at random.

The random variable X represents the number of green marbles selected.

The cumulative distribution function of X is given by

x	0	1	2	3
F(x)	a	b	$\frac{37}{38}$	1

(a) Show that $n(n-1)(n-2) = 7980$

(4)

(b) Verify that $n = 21$ satisfies the equation in part (a).

(1)

Given that $n = 21$

(c) find the exact value of a and the exact value of b

(6)

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Question 7 continued

Q7

(Total 11 marks)

TOTAL FOR PAPER: 75 MARKS

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