5 It is known that 20% of households in a certain country contain more than 4 people. Laxmi believes that, in her town, the percentage is lower than 20%. She chooses a random sample of 40 households in her town and notes the number which contain more than 4 people. She then carries out a test at the 2.5% significance level using a binomial distribution.

(a) Find the probability of a Type I error. [4]

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(b) State the rejection region for the test. [1]

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Laxmi finds that exactly 2 households in her sample contain more than 4 people.

(c) Explain why it is impossible for Laxmi to make a Type II error. [1]

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