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6. (a) Explain what you understand by the sampling distribution of a statistic.

(1)

A factory produces beads in bags for craft shops. A small bag contains 40 beads, a medium bag contains 80 beads and a large bag contains 150 beads. The factory produces small, medium and large bags in the ratio 5:3:2 respectively.

A random sample of 3 bags is taken from the factory.

(b) Find the sampling distribution for the range of the number of beads in the 3 bags in the sample.

(7)

A random sample of n sets of 3 bags is taken. The random variable Y represents the number of these n sets of 3 bags that have a range of 70

(c) Calculate the minimum value of n such that $P(Y = 0) < 0.2$

(3)

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Q6

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