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8. The weight of coffee in large jars, L grams, is such that $L \sim N(300, 7^2)$
The weight of coffee in medium jars, M grams, is such that $M \sim N(200, 6^2)$

A large jar and a medium jar are selected at random.

(a) Calculate the probability that the weight of coffee in the large jar is greater than 90 g more than the weight of coffee in the medium jar.

(5)

The weight of coffee in small jars, S grams, is such that $S \sim N(70, \sigma^2)$

There is a probability of 0.975 that the weight of coffee in a randomly selected large jar is more than four times the weight of coffee in a randomly selected small jar.

(b) Calculate the value of σ giving your answer to 3 significant figures.

(8)

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Q8

(Total 13 marks)

TOTAL FOR PAPER: 75 MARKS

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