8: The weights, Skg, of bags of sand are such that

$$S \sim \mathrm{N}(18, 0.03^2)$$

Three bags of sand are selected at random.

(a) Using standardisation, calculate the probability that their total weight is more than 54.1 kg.

(4)

The weights, Ckg, of bags of cement are such that

$$C \sim \mathrm{N}(25, 0.03^2)$$

Two bags of cement are selected at random.

(b) Using standardisation, calculate the probability that their weights differ by more than 0.02 kg.

(5)

The weights, Pkg, of pallets are such that

$$P \sim \mathrm{N}(15, 0.2^2)$$

The random variable T represents the total weight, in kg, of 28 bags of sand with 5 bags of cement and a single pallet of weight P_1

(c) Using standardisation, calculate the probability that $T < 30P_1 + 190$

(6)

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