MARKS

7

(2, 5)

3. The number of flaws per square metre in a type of carpet material varies with average 1.6 and standard deviation 1.2 flaws per square metre. The distribution of the number of flaws per square metre is not normal – in fact, it is discrete. An inspector studies 200 square metres of the carpet, records the number of flaws in each square metre, and then calculates the *average* number of flaws per square metre.

(a) Name the theorem that provides the basis for assuming approximate normality of the distribution of the average number of flaws per square metre of the carpet material; also indicate briefly the factor(s) which influence how accurate the approximation will be.

(b) Find the approximate probability that the average number of flaws per square metre exceeds 1.8.

(a)

(b)

(b)

Probability