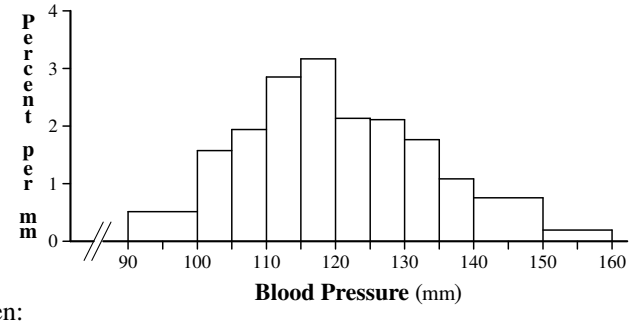
MARKS

8

(1, 1, 2, 2, 2)

2. The histogram at the right shows the distribution of blood pressure for 14,148 women in the Contraceptive Drug Study carried out in the early 1970s at the Kaiser Clinic in Walnut Creek, California. Use the histogram to answer the following questions; briefly *explain your reasoning* in each case:



(a) Is the percentage of women with blood pressures above 130 mm around 25%, 50% or 75%?

(b) Is the percentage of women with blood pressures between 90 mm and 160 mm around 1%, 50% or 99%?

(c) In which interval of blood pressures are there more women: 135-140 mm or 140-150 mm?

(d) For the interval 125-130 mm, the bar height is about 2.1% per mm; what percentage of women have blood pressures in this interval?

(e) In which interval of blood pressures are there more women: 97-98 mm or 102-103 mm?

(a) Percentage is represented by bar *area* and about 25% of the histogram area lies above 130 mm.

25 (a)

Per cent

(b) Essentially *all* the area of the histogram (close to 100%) lies between 90 mm and 160 mm.

99 (b)

Per cent

(c) The area of the 140-150 mm bar is *greater* than that of the 135-140 mm bar, because it is twice as wide and more than half as high.

140-150 mm (c)

Interval

(d) Percentage = bar area = bar height × bar width
= 2.1% per mm × 5 mm = 10.5%.

10.5 (d)

Per cent

(e) These two intervals are the *same* width (1 mm), so the *taller* (102-103 mm) contains more women; we are assuming a roughly *uniform* distribution of women within each of the first two histigram bars, which is reasonable with as many as 14,148 women represented in the histogram.

102-103 mm (e)

Interval