- Dom Arishi
- Exercise 6

① (i) True (ii) True (iii) True
(iv) True (v) True (vi) True
(vii) True (viii) false (ix) True

②

$$= \frac{\text{Sum of all salaries}}{\text{total no. of employ}}$$

$$= \frac{85+130+96+93+89+120+91+87+94+135}{10}$$

$$= \frac{1020}{10} \Rightarrow \text{mean} = 102 \text{ thousand dollars}$$

So to find median; $n = 10$

median = ave of middle most numbers

$$= \frac{93+94}{2} = \underline{93.5}$$

Standard deviation = σ can be as

$$\sigma = \sqrt{\frac{\sum (x_i - \bar{x})^2}{n}}$$

x_i	$(x_i - \bar{x})$	$(x_i - \bar{x})^2$
85	-17	289
130	28	784
96	-6	36
93	-9	81
89	-13	169
120	18	324
91	-11	121

87	-15	225
94	-8	64
135	33	1089
		$\Sigma = 3182$

now,

$$\sigma = \sqrt{\frac{\Sigma(x_i - \bar{x})^2}{n}} = \sqrt{\frac{3182}{10}} = \sqrt{318.2}$$

$$= \boxed{17.8382}$$

mean: $\boxed{102}$

median: $\boxed{93.5}$

standard deviation: $\sigma = \boxed{17.8382}$

(3)

(a) $z_{\alpha/2} = z_{0.05} = 1.645$

margin of error $= E = z_{\alpha/2} * (\sigma/\sqrt{n})$

$= 1.645 * (0.5/\sqrt{9}) = 0.27$

$\bar{x} \pm E = 8.5 \pm 0.27$

$= (8.23, 8.77)$

(b) degree of freedom $= n - 1 = 9 - 1 = 8$

$t_{\alpha/2, df} = t_{0.05, 8} = 1.860$

margin of error $= E = 0.31$

$\bar{x} \pm E = 8,5 \pm 0,31 = (8,19, 8,81)$