11. Sample size = 100, sample mean = 170 cm
Sample S.D = 8 cm, confidence level = 95%

→ Calculat the confidence interval (Lower Bound), (Upper Bound).

$\bar{x} = 170$ cm, $\sigma = 8$ cm, $n = 100$, $z = 1.96$.

$$CI = \bar{x} \pm z \times \frac{s/\sigma}{\sqrt{n}}$$

$$= 170 \pm 1.96 \times \frac{8}{\sqrt{100}}$$

$$= 170 \pm 1.96 \times \frac{8}{10}$$

$$= 170 \pm 1.96 \times 0.8$$

$$= 170 \pm 1.568$$

$= 170 + 1.568$ $\qquad$ $= 170 - 1.568$

$= 171.568$ $\qquad$ $= 168.432$

$= (168.432, 171.568)$

14. Sample size (n) = 500, Number of success (x) = 320, confidence = 90%.

→ $\hat{p} \pm z \times \sqrt{\frac{\hat{p}(1-\hat{p})}{n}}$

$\hat{p} = \frac{x}{n} = \frac{320}{500} = 0.64$, $z = 1.645$, $n = 500$

$\therefore 0.64 \pm 1.645 \times \sqrt{\frac{0.64(1-0.64)}{500}}$

$\therefore 0.64 \pm 1.645 \times \sqrt{\frac{0.64(0.36)}{500}}$

$\therefore 0.64 \pm 1.645 \times \sqrt{\frac{0.2304}{500}}$

$\therefore 0.64 \pm 1.645 \times \sqrt{0.0004608}$

$\therefore 0.64 \pm 1.645 \times 0.02147$.

$\therefore 0.64 + 0.0353$ $\quad\quad$ $\therefore 0.64 - 0.0353$

$\therefore 0.6753$ $\quad\quad$ $\therefore 0.6047$

→ $[0.6047, 0.6753]$

15. Mean Number of defects (λ) = 2
Number of defects = 3

→ ~~P(x = x~~

$$P(x = K) = \frac{\lambda^K \cdot e^{-\lambda}}{K!}$$

$$P(x = 3) = \frac{2^3 \cdot e^{-2}}{3!}$$

$$= \frac{8 \cdot e^{-2}}{6}$$

$$= \frac{8 \cdot 0.1353}{6}$$

$$= \frac{1.0824}{6}$$

$$= 0.1804$$

Q-6

6 ✱ C. interpretation.

↳ Skewness Aprox 0 :- the distribution is fairly symmetric this suggests that customers are equally likely To give Ratings above or below the Average.

↳ Kurtosis is <0 :- meaning the ratings are not extremely spread out this tells us that most customers gave scores that are pretty similar without too many people giving very low or High Ratings.

Q-7

✱7. C. Interpretation

↳ We can see that 25% of People weigh less than Q1, and 75% weigh less Than Q3 that's a big difference of 240 kg between Q1 and Q3, which shows that the weights are really spread out. the data is likely right-skewed. this means a few people have much higher weights