Ans. to Q. no. 1

Given, the ~~no. of~~ confidence level is 95%.

So, $95\% = (1 - \alpha) \times 100\%$

$\therefore \alpha = 0.05$.

We know, confidence interval = point estimate ± margin of error.

$$= \bar{x} \pm t_{n-1, 1-\alpha/2} \sqrt{\frac{s^2}{n}}$$

From the data, $\bar{x} = \dfrac{\sum\limits_{i=1}^{30} x_i}{n} = \dfrac{\sum\limits_{i=1}^{30} x_i}{30}$

$$= 11.5667$$

and, $S_x = 3.98$ $\left[S_x = \dfrac{\sum\limits_{i=1}^{30} (\bar{x} - x_i)^2}{30 - 1} \right]$

$\therefore$ confidence interval $= \bar{x} \pm t_{29, 1-\alpha/2} \times \sqrt{\dfrac{3.98^2}{30}}$

$$= 11.5667 \pm 2.045 \times \sqrt{\dfrac{3.98^2}{30}}$$

$$= 11.5667 \pm 1.48599$$

Ans: ~~~~ $[10.0807, 13.0527]$

This is the confidence interval for mean of items sold.

Ans. to Q. no. 2 (a)

In military ~~mean cost, we have~~ inventory system, we have to measure the mean cost.

Since, the duration is assumed to be long, we take this event as non-terminating simulation.

The parameter need to be steady state parameter.

Ans. to Q. no. 2(b)

Here, the system follows a cycle and we estimate the throughput over a cycle.

So, the parameter is steady state cycle parameter and the event is non-terminating.

Ans. to Q. no. 2(c)

As, the estimation is done over 120 months, the event is a terminating event.

The terminating event E, is that the ordering event is cancelled and the inventory evaluation is cancelled.