TASK 1

Q1: $X = 1550, 1700, 900, 850, 1000, 950$

mean $\bar{x} = \frac{1550 + 1700 + 900 + 850 + 1000 + 950}{6}$

$\bar{x} = 1158$

Standard deviation $\sigma = \sqrt{\frac{\Sigma (x - \bar{x})^2}{n}} = \sqrt{\frac{\Sigma (x - 1558)^2}{n}}$

$\sigma = 367.99$

Q2: $X = 3, 21, 98, 203, 17, 9$

mean $\bar{x} = 58.5$.

variance $\sigma^2 = \frac{\Sigma (x - \bar{x})^2}{n} = \frac{\Sigma (x - 58.5)^2}{n}$

$\sigma^2 = 6219.9$

Q3: probability of pass (0 fail) = $P(x = 0) = 0.8$
probability of fail in 1 sub = $P(x = 1) = 0.1$
probability of fail in 2 sub = $P(x = 2) = 0.07$
probability of fail in 3 sub = $P(x = 3) = 0.03$

Distribution:

x	0	1	2	3
$p(x)$	0.8	0.1	0.07	0.03

TASK 2:-

Q1:

probability of getting Answer right = 1/4

probability of getting Answer wrong = 3/4.

probability of getting 5 wrong among 20 Question.

$$= P(20,5) * \left(\frac{3}{4}\right)^5 * \left(\frac{1}{4}\right)^{15}$$

$$\approx 0.0000034$$

Q2:

$n = 50$, $k = 5$, $n-k = 45$

probability of getting 'D' = $\frac{1}{5}$

probability of getting All other outcome when Assuming 'D' is outcome exactly 5 times. = $\frac{45}{50} = 0.9$

So, $1 - 0.9 = 0.1$

probability of getting 'D' 5 times exactly is '0.1'

Q3:

prabability of Red bey pulled = 4/10

probability of black bey pulled = 6/10

combination of 2 1

R & R = (4/10) (3/9) = 2/15

R & B = (4/10) (6/9) = 4/15

B & R = (6/10) (4/9) = 4/15

B & B = (6/10) (5/9) = 1/3

probability of all possible outcomes = $\frac{2}{15} + \frac{4}{15} + \frac{4}{15} + \frac{1}{3}$ =

= 0.999