If a lot having defective $p = 2\% = 0.02$ $n = 89$ & $c = 2$ then find the probability of acceptance upto the acceptance number

$$P_c = \sum_{d=0}^{c} \frac{n!}{d!(n-d)!} \times p^d (1-p)^{n-d}$$

$$= \frac{89!}{0!\,89!} \times (0.02)^0 \times (1-0.02)^{89-0} = 0.16$$

$$P(1) = \frac{89!}{1!(89-1)!} \times 0.02^1 \times (1-0.02)^{89-1} = 0.2948$$

$$P_a(2) = \frac{89!}{2!(89-2)!} \times 0.02^2 \times (1-0.02)^{89-2} = 0.26$$

$$\boxed{P_a = 0.735}$$

In a double sampling plan

$N = 1000$ $n_1 = 35$ $c_1 = 0$; $n_2 = 30$ $c_2 = 1$

Find probability if 1% defective is the total probability

1. If zero defective in first sample
2. Exactly one defective in first sample
3. Zero defective in second sample

For 1st sample

$n_1 p' = 35 \times 0.01 = 0.35$

$\therefore np' = 0.35$ $c_1 = 0$

$P_a = 0.705$

(2) Exactly one defect $n_1 p' = 0.35$

$c = 1$

$P_a = .951$

Exactly defective: $P_1 - P_0$

$= .951 - .705 = P_{a1} = .246$

2nd Sample

$n_2 = 30$ $p' = 0.01$ $n_2 p' = 0.30$ $c_2 = 0$

$\therefore P_a = 0.741$

Total Prob = $P_1(0) + P_1(1) \times P_2(0)$

$= 0.705 + 0.246 \times 0.741$

$P_a = 0.8872$

5) In a single sampling plan $N = 500$ $n = 71$ $C = 1$

AQL = 0.005 LTPD = RQL = 0.05 Determine producer risk & Consumer risk & draw OC curve.

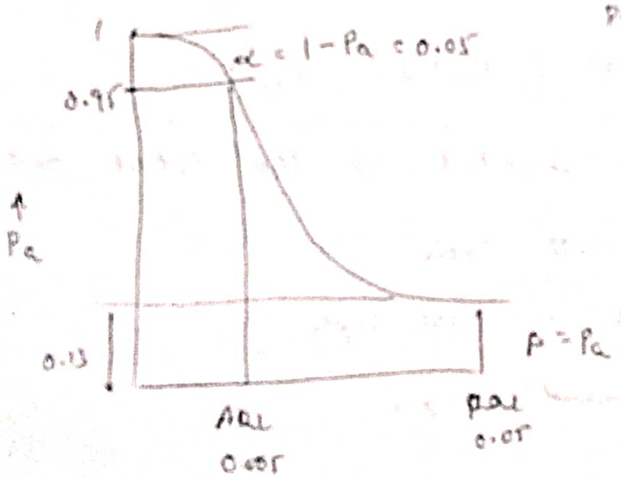
When $n = 71$ AQL = $p' = 0.005$ $C = 1$ (means 1 or less defective)

P_a

$np' = 71 \times 0.005 = 0.355$

for $np' = 0.355$ & $C = 1$

from 9 table $P_a = 0.95$



Producer's risk $= 1 - P_a =$
$1 - 0.95 = 0.05$

Consumer risk

$n = 71$ RQL = $p' = 0.05$

$np' = 71 \times 0.05 = 3.55$

$C = 1$

$P_a = 0.1307$ from table

$P_a = 13.07\%$
Consumer risk

Final $P_1(1) = 0.736 - 0.368 = \boxed{0.368}$

No of defect $= 4900 \times 1/100 = 49$

no. of non defective $= 4900 - 49 = 4851$

$n_2 p = 100 \times 1\% = 1$ $\quad c_2 = 0$

$C_2 = 0$ because c_2' given in Q is combined result from first & 2nd sample both

$n_2' = n_1 + n_2$

$P_2(0) = \boxed{0.368}$

total probability of acceptance $P_a = P_1(0) + P_1(1) \times P_2(0)$

$= 0.368 + 0.368 \times 0.368$

$= 0.5038$

0.0907 $\quad \lambda^0$

$N = 5000 \quad n = 120 \quad c = 2$

P_0'	$100 P_0'$	n	nP_0'	P_a
0.10	1	120	1.2	0.87
.2	2	|	2.4	0.56
.3	3	'	3.4	0.30
.4	4	'	4.8	0.14
.5	5	|	6.0	0.06
.6	6	|	7.2	0.025
.7	7	|	8.4	0.010
.8	8	|	9.6	0.003
.9	9	|	10.8	0.001
.1	10		12	0.00012

$n(\cdot)$ ... $0.736 - 0.368 = \boxed{0.368}$

A shipment of 2000 units is inspected if $n = 120$ $\quad P_1' = AQL = 0.02$

$c = 3$ $\quad P_2' = RQL = LTPD = 0.07$

Construct OC curve & find out α & β

$np' = 120 \times 0.02 = 1.2$

Selected Values of defectives	np'	P_a
0.01	1.2	0.966
0.02	2.4	.779
03	3.6	.515
04	4.8	.294
05	6.0	.151
06	7.2	.072
07	8.4	.032
08	9.6	0.014

To find out α

wkt $AQL = 0.02$ & $P_a = 0.779$

$\therefore \alpha = 1 - P_a$

$= 1 - 0.779$

$\boxed{\alpha = 0.221} = 22.1\%$

To find Consumer risk β

$RQL = 0.07$ & $P_a = 0.032$

$\beta =$