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Sequential Sampling Plan based on Truncated Life Test for Generalized Exponential Distribution

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ABSTRACT: In this paper, we propose a sequential sampling plan for truncated life test supposing that the lifetime of an item follows a generalized exponential distribution. We consider the median life of the item as quality parameter. We have observed the optimal sample size to guarantee the true median life is longer than a predefined life at a coveted levels of consumer's and producer's risks. The performance of the projected plan is examined through a virtual analysis with the repetitive acceptance sampling plan. The industrial utilization of these two sampling plans are represented in an example by taking real life data set.

Keywords: Sequential sampling plan; generalized exponential distribution; producer's risk; consumer's risk; truncated life test.

I. INTRODUCTION

The product quality is the most essential part in the field of production. Therefore the producer's focus on the quality of the products, as quality of the products helps to build up the position of the company in the market. Investigation of product's quality is essential before the item goes into the market. In spite of this, investigation of the each item may not be feasible because of time limitation and cost of investigation. In such cases, the acceptance sampling plan helps producer to improve the product quality and also helps consumer to prepare for decision about the lot. The Statistical Process Control (SPC), acceptance sampling plan and construction of experiment are the characteristics of statistical technique for quality control. In the acceptance sampling plan, consumer is able to take decision whether to accept or reject the lot of the products provided by the producer. The lot acceptance depends upon the product quality which is inspected in an experiment conducted for the random sample from the lot of products.

At the point when the producer will be influenced means adequate lot is rejected and the consumer will be influenced when an inadequate lot is accepted. Hence, the probability of accepting a bad lot or refusing a good lot is generally mentioned to as the consumer's risk (β) or producer's risk (α), separately. The idea of a time truncated life test is gradually become familiar in acceptance sampling. Usually, the lifetime of the product is examine by conducting a life test under a pre-specified time and this test can be utilized to give assurance the lifetime of the products. Numerous authors under the various circumstances have proposed acceptance sampling plans utilizing life tests with different distributions.

Single acceptance sampling plan is very famous design because of its simplicity during execution. Many authors have been discussed single sampling plan, one may suggest to Gui & Aslam [8] used for a product has weighted exponential distribution and Epstein [5] for exponential distribution. Purkar *et al*., [14] introduced two point method of acceptance sampling plan in which they minimize a consumer's risk by studying an operating characteristic curve. In the Repetitive Acceptance Sampling Plan (RASP), the proposed lot is accepted if the quantity of defective items is less than first acceptance number (c_1) and rejected if the quantity of defective items is bigger than the second acceptance number (c_2) otherwise repeat the process. The RASP is broadly utilized in industry discussed by Fallah Nezhad, and Seifi [7], Sherman [12] introduced repetitive acceptance sampling plan in which he gave results that repetitive acceptance sampling plan is better than the single acceptance sampling plan. In recent times Singh *et. al*., [13,15] has discussed the repetitive acceptance sampling plan is better than some other existing sampling plan for inverse Weibull distribution and generalized Pareto distribution. Aslam *et. al*., (2012) [1] described repetitive group sampling plan was better performing than the single acceptance sampling plan at high-quality levels. Balamurali and Jun [3], Balamurali *et al.,* [4] discussed the idea of repetitive group acceptance sampling (RGS) plan for variables examination. They talked about the improvements of the variables RGS plan over the single sampling plan. Balamurali *et. al*., [2] introduced mixed variable lot-size repetitive group sampling plan and a mixed variable lot-size plan for resubmitted lots for the scrutiny of value qualities of the products. Khan *et. al*., [10] discussed a control chart using variables repetitive sampling system for gamma distributed.

In the Sequential Sampling Plan (SSP) the samples of the items are chosen from the lot step by step. In each step, the aggregate examined items and the aggregate defective items are determined and afterward make a decision whether to keep inspecting or to prepare for decision about the lot acceptance and rejection. Sequential sampling plan is called sequential group sampling plan if sample size at each step is more than one and if sample size at each step is one then sequential sampling plan is called item to item sequential sampling plan. In this paper, we are considering item to item called item to item sequential sampling plan. Also Sequential Sampling Plan (SSP) has been useful in various areas of quality control Nezhad *et al.,* [11] utilized an approach like dynamic design program for designing a sequential sampling plan, and conduct sensitivity investigation about the parameters of this plan Fallahnezhad *et al.,* [6] discussed the sequential sampling plan for Weibull distribution in case of truncated life test and compare the Average Sample Number (ASN) with double and repetitive acceptance sampling plan. These type of acceptance sampling plans assist producers to promote item quality and in addition to keep consumer away from bad items. Moreover, these acceptance sampling plans build up an ideal sample size of items for examination, given consumer's and producer's risks. The aim of this paper is to introduce a SSP in which the life of products follows generalized exponential distribution with known shape parameter based on truncated life test. The rest of the paper structured as follows. Introduction of generalized exponential distribution is presented in section II. In section III, the design, operating procedure for boundary lines and performance measures of the sequential sampling plan are given and supportive example in section IV. The design of repetitive acceptance sampling plan and an illustration for industrial application are presented in section V and VI respectively. The comparative study of sequential sampling plan and repetitive acceptance sampling plan are explained in section VII. Finally, a conclusion is presented in section VIII.

II. GENERALIZED EXPONENTIAL DISTRIBUTION (GED)

Gupta and Kundu [9] initially presented the two-parameter generalized exponential distribution which was a possible alternative to the Weibull distribution and Gamma distribution.

The probability density function (PDF) of GED has the following:

$$f(t;\gamma,\lambda)=\frac{\gamma}{\lambda}e^{\frac{-t}{\lambda}}\left(1-e^{\frac{-t}{\lambda}}\right)^{\gamma-1} \quad ; \ x>0 \qquad (1)$$

and cumulative distribution function (CDF) of GED is given by

$$F(t;\gamma,\lambda)=\left(1-e^{\frac{-t}{\lambda}}\right)^{\gamma} \qquad (2)$$

where $\lambda>0$ is scale parameter and $\gamma>0$ is shape parameter. The pth perecentile of GED say $\theta_p=F^{-1}(p)$ is given by

$$\theta_p = -\lambda\, ln\left(1-p^{\frac{1}{\gamma}}\right) \qquad (3)$$

and median of the GED becomes

$$\theta_m = -\lambda\, ln\left(1-\left(\frac{1}{2}\right)^{\frac{1}{\gamma}}\right) \qquad (4)$$

Note that GED is a skewed one, for that reason it is better to utilize the median life to improve the design of acceptance sampling plans instead of mean life. Thus, unless otherwise specified, we regarded P is the probability that a test unit ofproducts fails prior to the termination time t_o is derived from Eqns. (2) and (3) as

$$P=\left(1-e^{\frac{-t}{\lambda}}\right)^{\gamma}, \text{ where } \gamma=-\frac{\theta_m}{ln\left(1-\left(\frac{1}{2}\right)^{\frac{1}{\gamma}}\right)} \qquad (5)$$

III. DESIGN OF SEQUENTIAL SAMPLING PLAN (SSP)

Consider a trial situation where products life follows a GED of the test items and a producer guarantees that the specified median lifetime of the items is θ_m^o. We are concerned in making deduction unless the true median lifetime, θ_m of a unit is bigger than a specified lifetime θ_m^o. The typical exercise is to take a random sample from a lot of product and after that execute a truncated life test for t_o units of time, for convenience take $t_o=a\theta_o$ where a is any positive constant. If there is sufficient proof that $\theta_m\geq\theta_m^o$ at the specific level of confidence for the consumer's risk (α) and producer's risk (β) then the lot under examination is accepted.

The quality level of every item is indicated by r and it is expressed as the ratio of θ_m and θ_m^o i.e. $r=\frac{\theta_m^o}{\theta_m}$. The producer needs the rejection probability of the lot at the higher quality level, indicated by P_2, becomes more than $1-\alpha$. Then again, the consumer needs acceptance probability of lot at the lower quality level, indicated by P_1, becomes less than β. Assume that the higher quality level is $r_2=\frac{\theta_m^o}{\theta_m}$ and lower quality level is $r_1=\frac{\theta_m^o}{\theta_m}$.

A. Working method for boundary lines

The working method of SSP is shown in Fig. 1. In each stage, the aggregate observed number of defective items under investigation are plotted on the diagram as one point. Then agreed to that lot in which the number of imperfect items falls under the acceptance line, if the aggregate imperfect items falls above the rejection line then reject that lot and if the aggregate imperfect items falls inside these two lines, at that point another sample be required to take. This procedure must be proceeded till the plotted point does not fall inside two boundary lines. Subsequently, the stages of inspecting are terminated when the plotted point does not fall inside these two boundary lines. The condition of two boundary lines for the given values of α, P_1, β and P_2 are as per the following:

$$X_A=-h_1+sn$$
$$X_R=h_2+sn \qquad (6)$$

where h_1, h_2 and s are calculated as follows:

$$h_1=\frac{1}{k}\left[log\left(\frac{1-\alpha}{\beta}\right)\right] \qquad (7)$$

$$h_2=\frac{1}{k}\left[log\left(\frac{1-\beta}{\alpha}\right)\right] \qquad (8)$$

$$s=\frac{1}{k}\left[\log\left(\frac{1-P_2}{1-P_1}\right)\right] \qquad (9)$$

and k is solved by the equation

$$k=\log\frac{P_1(1-P_2)}{P_2(1-P_1)} \qquad (10)$$

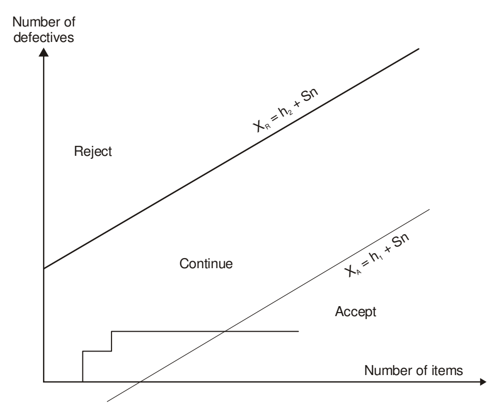

Fig. 1. The working method of the sequential sampling plan.

B. Performance measures of the sequential sampling plan

The performance measures helps to observe the execution of every sampling plan. The probability of non-conforming proportion (P) and the lot acceptance probability (P_α) can be obtained by the following equations:

$$P=\frac{1-\left(\frac{1-P_1}{1-P_2}\right)^{\delta}}{\left(\frac{P_1}{P_2}\right)^{\delta}-\left(\frac{1-P_1}{1-P_2}\right)^{\delta}} \qquad (11)$$

$$P_a=\frac{\left(\frac{1-\beta}{\alpha}\right)^{\delta}-1}{\left(\frac{1-\beta}{\alpha}\right)^{\delta}-\left(\frac{\beta}{1-\alpha}\right)^{\delta}} \qquad (12)$$

respectively. For the advised SSP the formula for computing ASN is:

$$ASN = \frac{P_a log\left(\frac{\beta}{1-\alpha}\right)+(1-P_a)log\left(\frac{1-\beta}{\alpha}\right)}{Plog\left(\frac{P_1}{P_2}\right)+(1-P)log\left(\frac{1-P_1}{1-P_2}\right)}. \quad (13)$$

Generally, the following optimization problem is applied for obtaining the desire parameters:

Minimize $ASN = \frac{P_a log\left(\frac{\beta}{1-\alpha}\right)+(1-P_a)log\left(\frac{1-\beta}{\alpha}\right)}{Plog\left(\frac{P_1}{P_2}\right)+(1-P)log\left(\frac{1-P_1}{1-P_2}\right)}$

Subject to $P_a\left(r_1 = \frac{\theta_m^o}{\theta_m}\right) \leq \beta$

$P_a\left(r_2 = \frac{\theta_m^o}{\theta_m}\right) \geq 1-\alpha.$

Thus, The proposed method for calculating ASN and P_a as per the following:

Method 1:

1. From Eqn. (5), calculate for the predefined value of r.
2. Using the value of in Eqn. (11), calculate the value of δ.
3. By substituting the value of in Eqn. (12), calculate the value of P_a.
4. Put the value of P and P_a in Eqn. (13) that gives the value of ASN.

IV. EXAMPLE

Assume that the lifetime of an item follows GED with the shape parameter $\gamma = 3$. It is required to design a SSP to assure that the median lifetime of this item turn out to be more than 2000 hours, whereas the experiment must be stopped after 2000h. The consumer needs that the risk of accepting the item lot with the median value of 2000 turns out to be under 0.25 and the producer needs the risk of rejecting the item lot with the median value of 4000 turns out to be under 0.05. In light of this data, we acquire that $a = 1.0, r_1 = 1,\ r_2 = 2, \gamma = 3, \beta = 0.25, \alpha = 0.05$ and $\theta_o = 2000$. The initial step for formulating a SSP during the experiment is to calculate P_1 and P_2. Calculate the values of $h_1,\ h_2, s, k$ from the Eqns. (7), (8), (9) and (10). Thus, the rejection line (X_R) and acceptance line (X_A) are:

$$X_R = 1.6522 + 0.3146n$$
$$X_A = -0.8145 + 0.3146n$$

Table 1: For above example, the results of SSP.

n	AC	RC	n	AC	RC
1	q	2	11	2	6
2	q	3	12	2	6
3	0	3	13	3	6
4	0	3	14	3	7
5	0	4	15	3	7
6	1	4	16	4	7
7	1	4	17	4	8
8	1	5	18	4	8
9	2	5	19	5	8
10	2	5	20	5	8

n: number of items examined; AC: acceptance number; RC: rejection number;
q: means not possible to accept the lot of the products.

The findings of the SSP are represented in Table 1. For illustration, consider the instance of computing the acceptance and rejection number for $n = 9$. Lot acceptance and rejection number must be whole number, thus the value of X_A is round off downward and the value of X_R is round off upward. Subsequently, the acceptance and rejection numbers for $n = 9$ are 2 and 5 respectively. In view of this outcome, for $n = 9$ if the aggregate failures, until this stage, is 3 or 4 then must continue the sampling procedure. If the aggregate failures, until this stage, is 0, 1 or 2 then the submitted lot is accepted and if the aggregate failures, until this stage, is greater than or equal to 5, at that point the submitted lot must be rejected.

V. DESIGN OF REPETITIVE ACCEPTANCE SAMPLING PLAN (RASP)

Assume that the median lifetime θ_m will be treated as the product quality parameter for the test units. Presently we need to check $\theta_m \geq \theta_m^o$, where θ_m^o, is specified life time. If $\theta_m \geq \theta_m^o$ then submitted lot is assumed to be good and if it does not holds then reject the lot.

A. Working method

The working methodology of RASP under truncated life test is explained as follows:

Step I: From a lot randomly choose a sample of n items and put them on a life test for a specified time t_o.

Step II: Submitted lot would be accepted if the quantity of failure items is d, which is less than or equal to c_1. Stop the life test and immediately reject the submitted lot once the quantity of failure items exceeds c_2, where $c_2 \geq c_1$.

Step III: If $c_1 < d \leq c_2$, at that point go to step I and repeat the life test experiment.

Thus, the proposed method for RASP to calculating ASN and P_a is as per the following:

Method 2.

(a) Specify the values of α, β, r, r_1 and r_2.
(b) From Eqn. (5), calculate P for r, r_1, r_2.
(c) Calculate the value of P_a and P_r at r, r_1, r_2.

$$P_a(r) = P(d \leq\ c_1/\ P) = \sum_{i=0}^{c_1} \binom{n}{i} P^i(1-P)^{n-i}$$

$$P_r(r) = P(d > c_2/\ P) = 1 - \sum_{i=0}^{c_2} \binom{n}{i} P^i(1-P)^{n-i}$$

(d) From the following optimization problem calculate the ASN, c_1 and c_2:

Minimum $ASN = \frac{n}{P_a(r)+P_r(r)}$

Subject to

$$\frac{P_a(r_1)}{P_a(r_1)+P_r(r_1)} \leq \beta$$

$$\frac{P_a(r_2)}{P_a(r_2)+P_r(r_2)} \geq 1-\alpha$$

$$c_1 > c_2 \geq 0.$$

VI. INDUSTRIAL APPLICATION

Assume a ball bearing company want to understand whether the median life of ball bearings is more prominent than the predefined life, θ_m= 5000 cycles, approximately. Consider the lifetime of each ball bearing follows generalized exponential distribution with $\gamma = 3$. Assume that they need to run the test 2500 cycles. Also suppose that the consumer's risk is 25% when true median life is 5000 cycles while the producer's risk is 5% when true median life is 10,000 cycles. This directs to $\alpha = 0.01, r = 4, a = 0.5, \beta = 0.25, r_1 =\ 1$, and $r_2 = 2$. For SSP, according to Eqns. (8) and (9) for above data the rejection line (X_R) and acceptance line (X_A) are:

X_R= 2.5582 + 0.0842 n

X_A= −0.8145 + 0.0842n

By method 1, in SSP for n= 10, the ASN is 10.39 represented in Table 5 and the proposed lot accepted if the aggregate failure items is 0 and rejected if aggregate number of failure items are more than 4, otherwise if failure items are between 0 and 4 put another item on test. On the other hand, based on method 2, for the above said parameter the repetitive acceptance sampling plan gives $n = 21, c_1 = 1, c_2 = 3$ and ASN is 21.13. In RASP, the proposed lot is accepted if the aggregate failure items is 0 or 1 and rejected if aggregate failure items are greater than or equal to 4. Else, repeat the experiment.

VII. COMPARATIVE STUDY OF SSP AND RASP

In this section, the comparative study among RASP and single sampling plan is discussed by Table 2. Small sample sizes are preferred in the field of industry due to less experimental cost. From the Table 2, it reflects that SSP gives smaller sample size than RASP for $\gamma = 3$ based on GED in case of time truncated life test.

Table 2: Comparison of SSP and RASP for $r_2 = 2, \gamma = 3$.

β	r	a = 0.5				a = 1.0			
		α = 0.05		α = 0.01		α = 0.05		α = 0.01	
		ASN (SSP)	ASN (RASP)	ASN (SSP)	ASN (RASP)	ASN (SSP)	ASN (RASP)	ASN (SSP)	ASN(RASP)
0.25	2	13.55	20.09	15.77	24.94	4.54	7.88	5.29	10.24
	4	10.05	18.08	10.39	21.13	2.90	4.63	3.00	7.16
	6	9.60	18.00	9.90	21.01	2.69	4.20	2.77	7.02
	8	9.48	18.00	9.78	21.00	2.63	4.09	2.71	7.00
0.10	2	23.84	29.86	26.60	36.83	8.00	12.38	8.92	12.86
	4	16.98	18.73	17.31	21.17	4.90	8.23	4.99	8.24
	6	16.20	17.55	16.50	19.69	4.54	8.03	4.62	8.03
	8	16.00	17.23	16.29	19.29	4.44	8.00	4.53	8.00
0.05	2	31.69	40.50	34.80	43.50	10.63	14.43	11.60	17.02
	4	22.21	30.38	22.54	31.42	6.41	11.06	6.50	14.01
	6	21.19	30.04	21.49	31.05	5.94	11.00	6.02	14.00
	8	20.92	30.00	21.22	31.00	5.81	11.00	5.89	14.00
0.01	2	49.95	62.28	53.85	65.96	16.76	22.82	18.07	23.98
	4	34.36	49.13	34.70	50.14	9.92	14.16	10.01	17.04
	6	32.77	49.00	33.07	50.00	9.19	14.00	9.27	17.00
	8	32.36	49.00	32.66	50.00	8.99	14.00	9.08	17.00

Table 3: ASN and probabilities of acceptance for $\gamma = 2, r_2 = 2$.

β	r	a = 0.5				a = 1.0			
		α = 0.05		α = 0.01		α = 0.05		α = 0.01	
		ASN	Pa	ASN	Pa	ASN	Pa	ASN	Pa
0.25	2	15.03	0.9500	17.51	0.9900	6.35	0.9500	7.39	0.9900
	4	9.64	0.9992	9.96	1.0000	3.65	0.9994	3.78	1.0000
	6	8.79	0.9999	9.06	1.0000	3.24	1.0000	3.34	1.0000
	8	8.51	1.0000	8.77	1.0000	3.10	1.0000	3.20	1.0000
0.10	2	26.47	0.9500	29.53	0.9900	11.17	0.9500	12.47	0.9900
	4	16.28	0.9995	16.59	1.0000	6.17	0.9996	6.29	1.0000
	6	14.83	1.0000	15.10	1.0000	5.47	1.0000	5.57	1.0000
	8	14.35	1.0000	14.61	1.0000	5.24	1.0000	5.33	1.0000
0.05	2	35.18	0.9500	38.63	0.9900	14.85	0.9500	16.31	0.9900
	4	21.30	0.9995	21.61	1.0000	8.08	0.9997	8.20	1.0000
	6	19.40	1.0000	19.67	1.0000	7.16	1.0000	7.26	1.0000
	8	18.77	1.0000	19.03	1.0000	6.85	1.0000	6.95	1.0000
0.01	2	55.45	0.9500	59.78	0.9900	23.41	0.9500	25.24	0.9900
	4	32.95	0.9996	33.27	1.0000	12.50	0.9997	12.62	1.0000
	6	30.00	1.0000	30.27	1.0000	11.07	1.0000	11.17	1.0000
	8	29.03	1.0000	29.30	1.0000	10.60	1.0000	10.69	1.0000

Table 4: ASN and probabilities of acceptance for $\gamma = 2, r_2 = 4$.

β	r	a = 0.5				a = 1.0			
		α = 0.05		α = 0.01		α = 0.05		α = 0.01	
		ASN	Pa	ASN	Pa	ASN	Pa	ASN	Pa
0.25	2	7.62	0.7366	11.38	0.8326	2.95	0.7251	4.66	0.8204
	4	6.91	0.9500	8.04	0.9900	2.57	0.9500	3.00	0.9900
	6	6.60	0.9825	7.13	0.9983	2.38	0.9837	2.57	0.9984
	8	6.45	0.9917	6.80	0.9995	2.29	0.9927	2.42	0.9996
0.10	2	13.25	0.6579	19.99	0.7719	5.37	0.6414	8.19	0.7539
	4	12.16	0.9500	13.57	0.9900	4.53	0.9500	5.06	0.9900
	6	11.35	0.9849	11.91	0.9985	4.10	0.9860	4.29	0.9987
	8	10.99	0.9935	11.35	0.9996	3.91	0.9943	4.03	0.9997
0.05	2	17.87	0.6128	26.64	0.7354	7.24	0.5931	10.90	0.7136
	4	16.16	0.9500	17.75	0.9900	6.03	0.9500	6.62	0.9900
	6	14.93	0.9857	15.53	0.9986	5.39	0.9868	5.59	0.9987
	8	14.42	0.9940	14.78	0.9996	5.13	0.9948	5.25	0.9997
0.01	2	28.88	0.5384	42.49	0.6719	11.65	0.5131	17.34	0.6430
	4	25.48	0.9500	27.47	0.9900	9.50	0.9500	10.24	0.9900
	6	23.24	0.9863	23.93	0.9986	8.38	0.9894	8.62	0.9988
	8	22.36	0.9943	22.76	0.9997	7.95	0.9951	8.08	0.9997

Table 5: ASN and probabilities of acceptance for $\gamma = 3, r_2 = 2$.

β	r	a = 0.5				a = 1.0			
		α = 0.05		α = 0.01		α = 0.05		α = 0.01	
		ASN	Pa	ASN	Pa	ASN	Pa	ASN	Pa
0.25	2	13.55	0.9500	15.77	0.9900	4.54	0.9500	5.29	0.9900
	4	10.05	0.9991	10.39	1.0000	2.90	0.9994	3.00	1.0000
	6	9.60	0.9999	9.90	1.0000	2.69	1.0000	2.77	1.0000
	8	9.48	1.0000	9.78	1.0000	2.63	1.0000	2.71	1.0000
0.10	2	23.84	0.9500	26.60	0.9900	8.00	0.9500	8.92	0.9900
	4	16.98	0.9994	17.31	1.0000	4.90	0.9997	4.99	1.0000
	6	16.20	1.0000	16.50	1.0000	4.54	1.0000	4.62	1.0000
	8	16.00	1.0000	16.29	1.0000	4.44	1.0000	4.53	1.0000
0.05	2	31.69	0.9500	34.80	0.9900	10.63	0.9500	11.60	0.9900
	4	22.21	0.9995	22.54	1.0000	6.41	0.9997	6.50	1.0000
	6	21.19	1.0000	21.49	1.0000	5.94	1.0000	6.02	1.0000
	8	20.92	1.0000	21.22	1.0000	5.81	1.0000	5.89	1.0000
0.01	2	49.95	0.9500	53.85	0.9900	16.76	0.9500	18.07	0.9900
	4	34.36	0.9996	34.70	1.0000	9.92	0.9997	10.01	1.0000
	6	32.77	1.0000	33.07	1.0000	9.19	1.0000	9.27	1.0000
	8	32.36	1.0000	32.66	1.0000	8.99	1.0000	9.08	1.0000

Table 6: ASN and probabilities of acceptance for $\gamma = 3, r_2 = 4$.

β	r	a = 0.5				a = 1.0			
		α = 0.05		α = 0.01		α = 0.05		α = 0.01	
		ASN	Pa	ASN	Pa	ASN	Pa	ASN	Pa
0.25	2	6.64	0.7516	10.27	0.8482	2.08	0.7301	3.28	0.8258
	4	7.48	0.9500	8.71	0.9900	2.08	0.9500	2.43	0.9900
	6	7.64	0.9819	8.27	0.9982	2.05	0.9839	2.21	0.9985
	8	7.70	0.9913	8.14	0.9994	2.04	0.9930	2.15	0.9996
0.10	2	12.14	0.6798	18.06	0.7950	3.80	0.6486	5.77	0.7618
	4	13.17	0.9500	14.69	0.9900	3.67	0.9500	4.10	0.9900
	6	13.15	0.9843	13.82	0.9984	3.53	0.9862	3.70	0.9987
	8	13.13	0.9931	13.57	0.9996	3.48	0.9945	3.58	0.9997
0.05	2	16.40	0.6388	24.09	0.7632	5.12	0.6018	7.68	0.7232
	4	17.50	0.9500	19.22	0.9900	4.88	0.9500	5.36	0.9900
	6	17.31	0.9851	18.02	0.9985	4.65	0.9970	4.82	0.9988
	8	17.23	0.9936	17.68	0.9996	4.56	0.9950	4.67	0.9997
0.01	2	26.61	0.5719	38.53	0.7088	8.26	0.5242	12.23	0.6557
	4	27.58	0.9500	29.74	0.9900	7.70	0.9500	8.30	0.9900
	6	26.94	0.9858	27.76	0.9986	7.23	0.9876	7.43	0.9988
	8	26.73	0.9940	27.22	0.9996	7.07	0.9953	7.19	0.9997

VIII. CONCLUSION

In this paper, firstly we proposed a sequential sampling plan based on the truncated life test while the life of the items follows generalized exponential distribution. We measure the product quality from its median life. The optimum parameters are calculated for the proposed plan by satisfying both consumer's and producer's risks. Also repetitive acceptance sampling plan is deliberate for truncated life test in which lifetime of product follows GED. Comparison between the performance of the SSP and RASP are discussed in terms of their ASN and this comparison reveals that the SSP gives smaller ASN than RASP. Also, in the context of industrial uses, the sequential sampling plan gives significant results than repetitive acceptance sampling plan in terms of reducing the ASN.

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