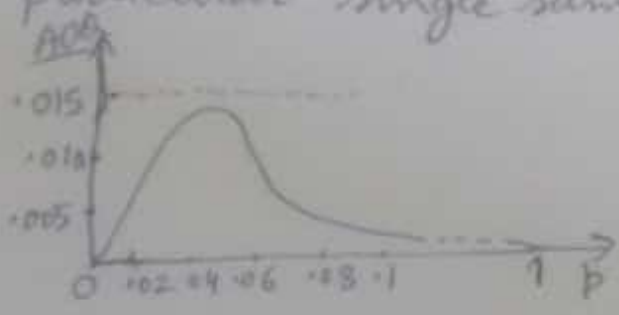


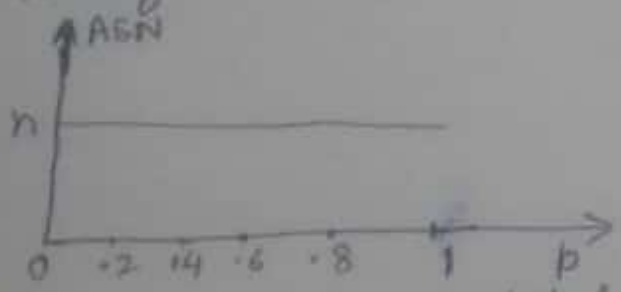
The AOR curve for a particular single sampling plan is shown below.



When the whole range of values of incoming quality ( $p$ ) is considered, the AOR curve has an upper limit. The maximum or upper limit of AOR is called the Average Outgoing Quality Limit (AOQL).

Average Sample Number (ASN) and Average Total Inspection (ATI) Curves

The expected number of items inspected in the sample is called the Average Sample Number (ASN). The ASN for single sampling plan is merely the sample size  $n$ , since the sample size is fixed in single sampling plan. The ASN curve is plotted between lot quality  $p$  and ASN function. In single sampling plan the ASN curve is a straight line.

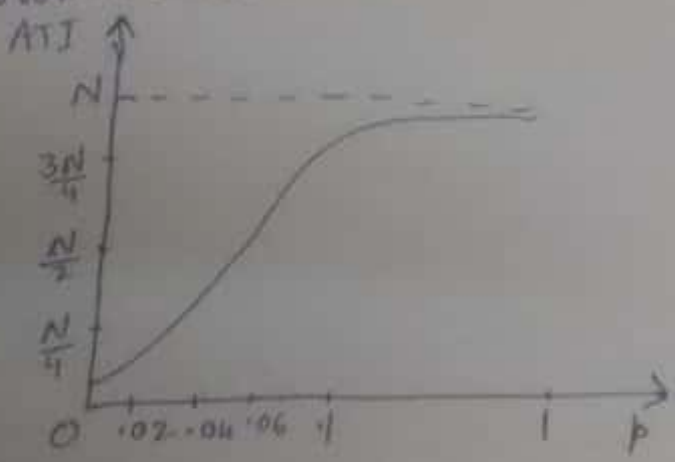


The ATI function is the average total number of items inspected when rectification scheme is applied. For calculating ATI for single sampling plans with rectification of rejected lots, we consider the following argument:

Let the single sampling plan be  $(N, n, c)$ . For accepted lots, the inspection amount is only  $n$  units (i.e. the sample size) and for rejected lots, the inspection amount is  $N$  units (i.e. the lot size). Since  $P_a$  is the probability of acceptance, we have

$$ATI = n \cdot P_a + N(1 - P_a) = n + (N - n)(1 - P_a)$$

For different values of  $p$ , different values of  $ATI$  may be calculated. The curve between  $p$  and  $ATI$  is called ATI curve. For a particular single sampling plan it is as shown below:



Purpose of Curves

The OC and AOR curves help to assess the protection given by the plan. They give an idea of the efficiency of the sampling plan. The ASN and ATI curves give an indication of the anticipated costs of inspection.

If inspection costs more than the costs of wrong decisions (without inspection) then that particular inspection plan can not be justified on economic considerations -

CBCS Course

S.S. in Statistics

Vikram University, Ujjain

Class : MA/MSc Fourth Semester

Subject : Statistics

Paper : Third, SBC and Reliability Theory

Unit : Second

Lecture No.: 5

Title : AOR, AORL, ASN and ATI Curves

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