Research Methodology

The research will be conducted using analytical research using convenience sampling method. A details survey will be carried out for home appliances company customers to collect their responses and one combined questionnaire would be administered on CRM, Sales promotion, Customer loyalty. Currently there are Samsung, LG, Panasonic, Godrej, Sony, Videocon, Electrolux, Haier, Kelvinator, Onida, Sharp, Whirlpool as home appliances brands out of which Samsung, LG, Panasonic, Godrej & Videocon have been taken based upon their product lengths, availability, visibility, tenure in Indian market. The proposed area of research is Lucknow city.

The sample size proposed to cover would be approx. 1000.

Primary Data: The data which are collected from the field under the control and supervision of an investigator is known as primary data. This type of data are generally afresh and collected for the first time.

Secondary Data: If data are collected from journals, magazines, government publications, annual reports of companies, etc., then such data are called as secondary data.

The data will be collected from primary and secondary sources available.

Each item in the questionnaire will be “Likert type item”, particularly having five points. These points will indicate the degree of agreement with a statement, in ascending order (Alrubaish et al., 2011):

1= Strongly Disagree
2= Disagree
3= True Sometimes
4= Agree
5= Strongly Agree

Generated Data:

Each item in the questionnaire will be a Likert type item, on an ordinal scale (e.g., Gravestock and Gregor-Greenleaf, 2008). Indeed, data collection will be on a Likert type item as: one (strongly disagree) to five (strongly agree). The addition of agreement scores on all such Likert type items in the
evaluation questionnaire will result in data on a Likert scale, also sometimes termed as “summative scale” (Alrubaish et al., 2011).

**Appropriate Analytical Approaches:**

The analysis of data on individual Likert type item will be guided by theoretically valid analytical approaches, instead of the fact that “others are using them” (e.g., Alrubaish et al., 2010). To obtain accurate and reliable results, analysis of data is naturally driven by its scales of measurement (Sundaram et al., 2010). As documented by Alrubaish et al. (2011), analysis of a Likert type item may be more appropriate when non-parametric approach (e.g. median, quartiles, percentiles) is used. The parametric approach like mean can distort inference. For an item, as obvious, the mean of strong disagreements to strong agreements will provide a misleading impression of average agreement (Alrubaish et al., 2011). It can be deceptive. Further, the method for analyzing such evaluation data must include problem solving potential: clarity, exactness, informational value, simplicity and availability (Gob et al., 2007). In other words, consideration of a grade point(s) as median, quartile, or cumulative percentage with specific grade points is expected to provide more clarity regarding even the threshold of agreement. Informational value of this approach is intuitively better than that of mean. Thus, for the academic developers and quality managers, the non-parametric approach may provide clearer understanding of results. It may be easier to derive instant clues to guide future planning. In summary, this study will focus on five benefits (Alrubaish et al., 2011) out of analytical results: (i) appropriateness in application, (ii) accuracy in results and related inferences, (iii) ease of understanding, (iv) distortion free useful clues, and (v) optimize the use of allocated resources.

According to details mentioned above, to describe comparative use, both- parametric and non-parametric measures will be used to describe individual scores. Then, as considered by Alrubaish et al. (2011), the performance of individual item will be considered as follows:

**Arithmetic mean:** Mean agreement for each item will be calculated. Then performance of each of those items will be expressed as:

- 3.6 & above – Highly agree
- 2.6 -3.6 – Acceptable
- Less than 2.6 – Improvement required

To emphasize again, arithmetic mean may be influenced by extreme values of evaluation scores. Because of commonly observed skewness in such data, it is likely to provide underestimation, or
overestimation of the results. Hence, if performance grading is based on this mean score alone, it is also expected to be underestimated, or, overestimated. Also, for an item, the mean of strong disagreements to strong agreements may provide a misleading impression of average agreement. Further, there is no clarity regarding its meaning and also it lacks easy understanding by the quality managers.

To cope up with above problem as well as to discuss added merits while using non-parametric approach, following three measures will be used:

**Second Quartile (Median):** The median value for an item implies that at least 50% of the respondents selected that score or higher scores for the corresponding item. If a fraction is involved, it may be rounded off for more clarity to non-statisticians. To begin with, keeping the starting goal that at least 50% respondents reach satisfaction score 4 or 5 for each item, using the respondents’ median agreement score, the performance of each item will be described as:

- 4&5 - Highly agree
- 3  - Acceptable
- 1&2 - Improvement required

In contrary to performance grading based on mean score, the median facilitates easy understanding by the quality planners.

**First Quartile:** The first quartile value for an item implies that at least 75% of the respondents selected that score or higher scores for the corresponding item. Like in case of median, it may also be rounded off. Instead of targeting a minimum of 50%, to ensure higher degree, a home appliance company may target enhanced levels of satisfaction as at least by 75%. Considering this goal that at least 75% respondents reach satisfaction score 4 or 5 for each item, performance of each item using first quartile will also be described as:

- 4&5 - Highly agree
- 3  - Acceptable
- 1&2 - Improvement required

The understanding by quality managers will be also easy and useful for future improvements. In addition, compared with median, it can identify additional areas for further improvements.
In addition, above-mentioned indices will be used to draw inferences related to use of individual items in further study of selected factors. The required strategies may be very well described based on these results.

To derive added information (if any), this might be appropriately analyzed using parametric measures like mean and standard deviation. Depending on the distributions of collected data, if required, regression analysis may be explored appropriately.

**Statistical tests can be performed with SPSS 20.0**

- Center Tendency (Mean, Standard Deviation); Correlation of Questions
- Reliability Test; Test of Normality
- Test of multi-collinearity; Test of Skewness
- Correlation coefficient of Variables; Linear Multiple Regression Analysis