

Birla Institute of Technology and Science, Pilani

First Semester 2023-24

Comprehensive Examination (Closed book)

MPBA G529

Marketing Research and Metrics

Date - 7/12/2023

M.Marks:35

Time: 3Hours

Note:- Attempt all the questions and each question carries equal marks.

Q1. The Tasty Biscuit company is test marketing two new flavours- cinnamon and coffee. They select 12 stores whose weekly biscuit sales are almost identical and randomly subdivide the stores into three groups of four stores each. The cinnamon biscuit is placed in one group of four stores and the coffee biscuit is placed in a second group of four stores, while one of the company's established and popular chocolate flavoured biscuit is placed in the third group of four stores. All the flavours are priced identically and are offered in 400 gm packages only. Unit sales in each store are monitored for two weeks with the results shown in the table given below. What conclusions can you draw from the experiment using an appropriate statistical test?

| Coffee unit sales | Chocolate unit sales | Cinnamon unit sales |
|-------------------|----------------------|---------------------|
| 11 | 15 | 11 |
| 9 | 17 | 23 |
| 13 | 4 | 25 |
| 11 | 20 | 9 |

Q2. An FMCG company believed that its popular brand of soap had a fifty percent penetration rate [that is it is consumed in half of the households in India]. A random sample of 500 Indian households showed 55 percent were consumers of the company's brand of soap. Can the company be 95.4 percent confident that the sample finding of 55 percent is significantly different from 50 percent penetration rate believed to exist for their soap brand? Can the company be 99.7 percent confident that the 5 percent difference is a significant one? Repeat the problem assuming a sample of 1250 were used instead of only 500.

Q3. A breakfast cereal company has just completed its annual survey of households in the ten largest cities in India. Five hundred households in each city were randomly selected for the study. Two of the cities, New Delhi and Chennai consisted of households which had very similar demographic characteristics, according to Indian census data. Given below are two tables of findings from the survey, one from New Delhi and the other from Chennai. Both the tables show how each city's total sample of 500 breaks down into different income and family size categories. Are the differences you see in the tables large enough to suggest that possibly the sample drawn in one of these cities is not representative of the city's demographic characteristics?

| | Income | | <u>New Delhi</u> | | | | <u>Chennai</u> | |
|-------------|--------|-----|----------------------|------|--|-----|----------------|------|
| Family size | | Low | Medium | High | | Low | Medium | High |
| 5+ | | 55 | 51 | 40 | | 66 | 42 | 43 |
| 3 | | 48 | 78 | 58 | | 53 | 75 | 61 |
| 2 | | 39 | 71 | 60 | | 31 | 66 | 63 |

Q4. Explain through brief caselets the use of any three inter-dependence and any three dependence multivariate statistical analytical tools that can be used to solve specific marketing problems.

Q5. Take any business/marketing problem and convert it into a market research problem. Suggest a research approach for attaining two of the research objectives. Then develop two hypotheses each for these two research objectives and specify a research design to test these four hypotheses.