Acme Corporation is an FMCG company based out of Finland and having one of most renowned Chocolate brand Hooli under its portfolio. However, in recent years they are seeing downfall in their market share. At the same time, their closest competitor increasing their share rapidly. This is worrying top management and they still could not figure out reason for reduction in market share in spite huge increase in marketing expenditure. They hired marketing research agency to find out reason for this reduction. Through initial secondary research, agency concluded loyalty is a key factor for sustaining market share. Then they decided of carrying out pilot study to find out the current loyalty status of consumers for Hooli chocolates.

The attached dataset is of 100 respondents and having variables identifying various stages for building loyalty.

Below is the description of each variable

- Gender = gender of respondent (1 = Male, 2 = Female)
- Location = Residence location (1= Rural, 2 = Urban)
- Income = City income (1= High income, 2 = Middle income, 3 = low income)
- Distribution = Distribution type (1 = Selective, 2 = Exclusive, 3 = Intensive)
- Promotion = promotion tools (1= Advertisement, 2 = Free sample, 3 = Event, 4 = Discount)
- Quality= level of quality for product (1 to 5 Likert scale)
- Intention = level of intention for product (1 to 5 Likert scale)
- Satisfaction = degree of satisfaction for product (1 to 5 Likert scale)
- Loyalty = degree of loyalty for product (1 to 5 Likert scale)

1 to 5 Likert scale represent level of agreement in which 1 means strongly disagree, 2 means disagree, 3 means neutral, 4 means agree and 5 means strongly agree.

Analyse the data to answer the following questions. In each case formulate the null and alternate hypotheses and conduct the appropriate statistical test(s).

(i) Is there any relationship between type of distribution with city income? Interpret the results? **3 Marks**

(ii) Is there any relationship between location type with promotion tools used by the company? **3 Marks**

(iii) Does the choice of promotion tools make any difference in the loyalty status? **4 Marks**