**Decision Science**

**June 2022 Examination**

**Question 1. Three airlines serve a Srinagar. Airline ‘Amira’ has 50% of all the scheduled flights, airline ‘Biyas’ has 30%, and airline ‘chinar’ has the remaining 20%. Their on-time rates are 80%, 65%, and 40%, respectively.**

**Part 1). Draw the Probability tree diagram. (Note: You may use any software for this, like**

**MS paint, MS office, etc.)**

**Part 2). A plane has just left on time. What is the probability that it was airline ‘Amira’? (10 Marks)**

**ANS.**

## Introduction

The tree diagram represents a probability space utilized in chance theory. A chain of separate activities, or conditional chances, make up the probability tree diagram. When conditional probability is used, unbiased occurrences can be something from a series of coin flips to drawing a card from a deck without it being replaced. Every node on the probability tree diagram aids in reflecting an event. This is linked to its probability. Due to the fact it is the most certain incidence, the foundation node has a probability value of 1. Sibling nodes are included in the

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**Question 2. Rashmi Dhar, manufacturer, and seller of ‘Kashmiri- kahwa’ through E-commers websites. She wanted to know the effect of her spending in advertisement of ‘Kahwa’ on the sales, along with the other factors; ‘number of sales representatives’, ‘customer-satisfaction ratings’. For this research she has gathered the sales data in the following table, along with other necessary information.**

**Part 1) Define dependent and independent variables**

**Part 2) Write regression model equation only.**

**Part 3) Run regression analysis in EXCEL (copy all those tables from EXCEL and paste them in your document).**

**Part 4) Write the Interpretation of Regression statistics-table, ANOVA- table.**

**Write an interpretation (by referring P-value/ t-stat) on significant effect of independent variables on sales.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Region/****Districts** | **Sales of****Kahwa (in****INR)** | **Spending in****advertise (in INR)** | **number of sales****representatives****(person)** | **customer-satisfaction****ratings (1=highly dissatisfied to 5 = highly satisfied** |
| Kupwara | 55328 | 5512 | 1 | 1 |
| Badgam | 56251 | 8337 | 1 | 1 |
| Leh-ladakh | 57126 | 8788 | 4 | 1 |
| Kargil | 58739 | 8828 | 5 | 1 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Region/****Districts** | **Sales of****Kahwa (in****INR)** | **Spending in****advertise (in INR)** | **number of sales****representatives****(person)** | **customer-satisfaction****ratings (1=highly dissatisfied to 5 = highly satisfied** |
| Punch | 66984 | 9050 | 5 | 2 |
| Rajouri | 70676 | 10150 | 7 | 2 |
| Kathua | 73206 | 11236 | 8 | 2 |
| Baramula | 80571 | 12538 | 8 | 3 |
| Bandipore | 93168 | 13161 | 8 | 3 |
| Srinagar | 99432 | 13448 | 9 | 4 |

**(10 Marks)**

## ANS.

## Introduction

Variables are crucial in determining the features of various values, which might aid the researcher in achieving definitive results. Values inclusive of top, temperature, and so forth can be used as variables. Researchers were located manipulating the based and independent variables so that you can establish correlations between or extra components of an observation. While talking approximately a based variable, it's common to refer to it because of the supply of trouble. The study's different variables, in large part, decide the importance of this type of

**Question 3.**

**3a. According to one survey in India, 75% of Instagram users love REELS. Suppose that 25 Instagram users (randomly selected) have been approached in the university located in vile parle. They have been asked about their status of like/ dislike the Instagram- REELS.**

# a) What is the probability that Exactly 15 of them would agree with the claim (or said they love Insta-REELS)?

# b) What is the probability that Exactly 20 of them would agree with the claim (or said they love Insta-REELS)? (5 Marks)

##

## ANS.

## Introduction

Reels have enabled users to put up video segments of roughly 15 seconds in the application. Along with reels, Instagram offers functions like memories and IGTV that have piqued humans’ interest. From the standpoint of a person, such features may be exploited to boom one’s

**3b.** **‘Bhartdarshan’ is an Internet-based travel agency wherein customers can see videos of the cities they plan to visit. The number of hits daily is a normally distributed random variable with a mean of 10,000 and a standard deviation of 2,400.**

**a. What is the probability of getting more than 12,000 hits?**

**b. What is the probability of getting fewer than 9,000 hits? (5 Marks)**

**ANS.**

**Introduction**

Unprecedented steps were made to strengthen the infrastructure of hospitality due to the latest advances in technology and era. The hospitality business has grown to be one of the most critical industries in the international, propelling economies to new heights. Bharatdarshan presents its