**JAIPURIA INSTITUTE OF MANAGEMENT, INDORE**

PGDM, FIRST TRIMESTER (Batch 2020 - 22)

END TERM (Additional Improvement) EXAMINATION, December - 2020

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| --- | --- | --- | --- |
| Course Name | **Statistics For Management** | Course Code | **OM 101** |
| Max. Time | 2 Hours | Max. Marks | **40** |

**INSTRUCTIONS:**

* The End-Term exam shall be a combination of MS Excel and Pen-Paper based examination.
* Students are advised to use “MS Excel Data Analysis Tool Pack” to do calculations while attempting questions.
* Students are required to save their MS Excel File with one sheet for each question. Students must write their Excel output and interpretations (in Text Box) on the same sheet of the question.
* Student must save their MS Excel Sheets in their name (example – Rakesh\_Roshan\_ Section A) and send the MS Excel file on email id provided by examination office.
* Sending pictures of all the sheets for the theory question is COMPULSORY. In absence of the pictures of these theory question answers, a student shall be awarded ZERO marks.
* Please write the first line of every question on the excel sheet (with name of the organization given in the question on Moodle) before proceeding for solution. In absence of writing the question and name of the organization, student may be given ZERO marks.

Q1. “Vidyut Advertising Limited” developed & launched a new advertisement campaign “Fruit-In Breakfast” for one of its prominent Food sector FMCG client’s breakfast cereal. To test the effectiveness of this advertisement campaign, “Vidyut Advertising Limited” collected data of 18 regular customers on weekly consumption of breakfast cereal (in ounce).

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Customer No.** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** |
| Consumption before campaign | 15 | 18 | 20 | 22 | 19 | 16 | 17 | 18 | 19 |
| Consumption after campaign | 20 | 17 | 22 | 26 | 25 | 19 | 18 | 23 | 19 |
|  |  |  |  |  |  |  |  |  |  |
| **Customer No.** | **10** | **11** | **12** | **13** | **14** | **15** | **16** | **17** | **18** |
| Consumption before campaign | 20 | 22 | 21 | 22 | 15 | 14 | 20 | 19 | 17 |
| Consumption after campaign | 19 | 24 | 22 | 27 | 20 | 17 | 22 | 24 | 23 |

State Null and Alternate hypothesis. Analyze the data, at α = 0.05, can it be concluded that campaign has successfully increased demand of breakfast cereal?  **(8 Marks)**

Q2. “Micron Limited” is a prominent automobile company involved in Business to Business Marketing. The company has two methods of reminding its customers about payment due collections viz. Letter and telephone calls. The slow accounts overdue recovery data (in days) using these two methods is as under: -

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Letter | 12 | 13 | 10 | 17 | 18 | 19 | 17 | 12 | 11 | 10 |
| Phone calls | 7 | 8 | 6 | 7 | 8 | 6 | 4 | 7 | 8 |  |

Analyze the data using appropriate statistical tools. Use α = 0.05. Generate meaningful insights from your analysis on effectiveness of collection method.  **(8 Marks)**

Q3. “Cream Delight” is a new brand of ice-cream launched across India. The company collected data on average ice-cream scoop consumption per month in Five major cities of India.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Brands | ice-cream scoop consumption per month | | | | | | | | |
| Chandigarh | 10 | 8 | 7 | 8 | 6 | 9 | 5 | 4 |
| Bangalore | 12 | 18 | 10 | 7 | 12 | 18 | 12 |  |
| Guwahati | 5 | 4 | 7 | 8 | 4 | 10 |  |  |
| Patna | 6 | 5 | 3 | 3 | 4 | 5 | 6 |  |
| Bhubaneshwar | 7 | 8 | 7 | 5 | 9 | 4 | 7 | 8 |

Use appropriate statistical test and generate Excel output at 0.05 significance level. Analyze the output and develop meaningful insights for “Cream Delight”. **(8 Marks)**

Q4. “Easy-Rent” is an organization involved in arranging rented homes for its customers. The company feels that the rent of any house or flat depends on two major criteria i.e. No. of bedrooms and Distance from City Centre. To analyze this situation, company collected information from 10 customers on their willingness to pay rent.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Rent per month  (Rs ‘000) | 12.5 | 13.5 | 16.2 | 18.0 | 12.8 | 17.3 | 15.2 | 12.7 | 14.1 | 14.3 |
| No. of bedrooms | 2 | 2 | 3 | 4 | 2 | 4 | 2 | 2 | 3 | 2 |
| Distance from city Centre (KM) | 5.1 | 4.9 | 4.0 | 2.9 | 5.3 | 3.8 | 2.8 | 3.5 | 3.5 | 4 |

Analyze the data. What should be the expected rent for an apartment with two bedrooms and situated 3.2 KM from city Centre? **(8 Marks)**

Q5. Discuss the use of non-probability sampling methods in a business situation with an example of each method. **(8 Marks)**