**JAIPURIA INSTITUTE OF MANAGEMENT, INDORE**

**PGDM**

**FIRST TRIMESTER (Batch 2022-24)**

**END TERM EXAMINATION, Nov-2022**

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| --- | --- | --- | --- |
| Course Name | Statistics for Management | Course Code | 40501 |
| Max. Time | **2 hours** | Max. Marks | **40** |

**INSTRUCTIONS:**

* *Students can use personal Laptops in examination.*
* *Students can use MS-Excel data analysis tool pack in the examination.*
* *Students should save excel file with their name enrollment no. and section on the desktop.*
* *Students are advised to write their comments in text box along with output in Excel file only.*
* *Each question should be solved in separate excel sheet. Only ONE Excel file per student should be submitted.*

**Question No. 1 (2 + 5 Marks)**

L & T is a major engineering company engaged in manufacturing of equipment for food processing industries across the globe. The company’s Asia market is divided in two regions, India and south east Asia. The sales data for last ten years in these two markets is presented below. Examine (Explore) the data. State the null and alternative hypothesis, use appropriate statistical tool (at α = 0.02) and generate meaningful insights.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Year** | **2012** | **2013** | **2014** | **2015** | **2016** | **2017** | **2018** | **2019** | **2020** | **2021** |
| Indian market (sale Rs. Billion) | 500 | 541 | 556 | 601 | 678 | 671 | 689 | 700 | 340 | 450 |
| South East Asia Market (sale Rs. Billion) | 300 | 330 | 345 | 491 | 501 | 430 | 581 | 600 | 200 | 324 |

**Question.2 (3 + 5 Marks)**

“Easy Bazar” is a chain of mini markets in Bhopal which provides grocery and convenient goods to customers in Bhopal. The chain has six stores in various locations in Bhopal. The owner was worried about average billing time for customers during peak hours i.e. 18:00 – 20:30 hrs. in various branches. He appointed a research firm which collected following data. Examine (Explore) the data. State the null and alternative hypothesis, use appropriate statistical tool (at α = 0.02) and generate meaningful management insights.

|  |  |
| --- | --- |
| **Location** | **Billing Time (Minutes)** |
| New Market | 10 | 11 | 9 | 10 | 8 | 11 | 12 | 18 | 10 | 9 | 11 | 12 | 17 | 9 | 8 | 9 | 7 |
| Piplani | 10 | 10 | 9 | 7 | 9 | 10 | 11 | 10 | 9 | 8 | 9 | 8 | 7 | 9 | 6 | 5 |  |
| TT Nagar | 8 | 7 | 9 | 7 | 9 | 10 | 11 | 10 | 9 | 8 | 10 | 9 | 8 | 7 | 9 |  |  |
| Shahadara | 11 | 12 | 12 | 13 | 10 | 19 | 10 | 9 | 10 | 11 | 13 | 10 | 18 | 10 | 9 |  |  |
| Awadhpuri | 10 | 11 | 10 | 13 | 15 | 14 | 15 | 16 | 17 | 10 | 19 | 9 | 8 | 10 |  |  |  |
| Bairagarh | 10 | 10 | 12 | 12 | 10 | 11 | 10 | 9 | 9 | 8 | 10 | 9 | 8 | 9 | 9 | 8 |  |

**Question. 3 (12 Marks)**

“Grow Sales” is a training and consulting organization. The organization provides training programs to sales executives of various FMCG companies. The training agency claims that on an average, an individual sale person’s performance will increase at least by Rs. 50 Million after the training program. To verify their claim, a FMCG company gathered the data, which is enclosed in excel file. State the null and alternative hypothesis, apply relevant concepts and generate meaningful management insights. (Assume that all other conditions in the market remained unchanged)

*(Use Data sheet “Grow Sales Data” from attached Excel File)*

**Question No. 4 (13 Marks)**

Anuradha Patel was concerned about her portfolio of NIFTY 200 stocks. Currently she only has one stock of Adani Green Limited in her portfolio and wish to diversify the same. She has shortlisted two stocks, Bata India and Tata Motors. However, due to financial constraints, currently she can invest in one stock only. Apply relevant conceptual framework to Ms. Anuradha Patel’s data and generate meaningful insights.

*(Use Data sheet “Anuradha Patel Portfolio” from attached Excel File)*