**JAIPURIA INSTITUTE OF MANAGEMENT, INDORE**

**PGDM FIRST TRIMESTER (Batch 2021-23)**

**END TERM (Improvement) EXAMINATION, December - 2021**

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

**INSTRUCTIONS:**

* *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 (10 Marks)**

“Zoom Rent A Car” (ZRAC) is a car rental company operating in Indian Metro cities. ZRAC customers typically rent a car on a daily basis and return the car in the evening. The company offers “Maruti Wagon-R” car for a daily rental at Rs. 2000/- per day, and the customer is required to fill petrol in the car. The company operates 310 days per year and the variable cost is Rs 200/- per day, which the company manages. ZRAC is planning to enter in a contract with a Maruti car dealer to purchase cars at Rs. 7,50,000/- and after one year, the dealer shall buy back all the cars at half of the original sale price. ZRAC has estimated following probability of the number of cars rented per day. Examine this uncertain business situation and suggest best course of action to ZARC.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **No. of cars rented per day** | **12** | **13** | **14** | **15** | **16** | **17** | **18** | **19** | **20** | **21** |
| **Probability** | 0.05 | 0.08 | 0.13 | 0.15 | 0.20 | 0.13 | 0.10 | 0.07 | 0.05 | 0.04 |

**Questions.2 (7 Marks)**

“Universal insurance Company” is an insurance company engaged in medical insurance of Indian citizens. During COVID-19, there was a surge in insurance claims, which were handled by six clerks. Their timing to clear insurance claims is tabulated below. Analyze the situation and draw meaningful management insights.

|  |  |
| --- | --- |
| **Clerk Name** | **Time for processing insurance claim (Hours)** |
| Rajesh | 3 | 4 | 4 | 6 | 3 | 5 | 4 | 7 | 5 |  |  |
| Reena | 5 | 6 | 6 | 5 | 4 | 7 | 6 | 8 | 7 | 7 |  |
| Karuna | 3 | 4 | 3 | 5 | 3 | 5 | 3 | 5 | 4 | 4 | 5 |
| Sakshi | 8 | 9 | 8 | 7 | 10 | 11 | 12 | 8 | 9 |  |  |
| Jasmine | 7 | 8 | 9 | 5 | 10 | 10 | 9 | 7 | 12 | 8 |  |
| Manmohan | 8 | 9 | 10 | 8 | 9 | 12 | 12 | 13 | 10 |  |  |

**Questions. 3 (10 Marks)**

“Auto-Classic” is a Garage which claims that after maintenance, the average mileage of the car substantially improves. State the null and alternative hypothesis, apply relevant concepts and generate meaningful management insights.

*(Use Data from attached Excel File)*

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

The Indian equity markets have emerged as top performing among its global peers on a year-on-year (YoY) and year-to-date (YTD) in 2021. On the contrary, global inflation has been on the higher side in the year 2021. Looking into an opportunity to beat the inflation with mutual funds, Mr. Edward Phillips has been pondering upon investing in the equity markets. He has been considering Parag Parikh Flexi Cap Fund and SBI Magnum Flexi Cap Fund for investing a SIP of Rs. 5,000 to start with. Both the mutual funds track the performance of S&P BSE 200 Index. In addition to comparing the returns on the individual components of his portfolio, Edward also wanted to compare the risk profiles of the two mutual funds. He wanted to ensure that the expected return of his portfolio would provide an inflation beating return in the long term.

Mr. Edward collected the data presented in the attached file (File name: Edward Datasheet). You are required to advise Mr. Edward using descriptive and simple linear regression techniques to compare the risk and return of the possible mutual funds for investment.

Apply relevant conceptual frameworks to Mr. Edward’s data and generate meaningful insights.

*(Use Data from attached Excel File)*