****

**JAIPURIA INSTITUTE OF MANAGEMENT, NOIDA**

**PGDM / PGDM (M) / PGDM (SM)**

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

**END TERM EXAMINATION, OCTOBER 2023**

|  |  |  |  |
| --- | --- | --- | --- |
| Course Name | Operations Analytics | Course Code | 20525 |
| Max. Time | **2 Hours** | Max. Marks | **40 MM** |

INSTRUCTIONS:

1. This is a closed-book examination.
2. Examinations will be conducted in the computer lab on Moodle using MS Excel.
3. All interpretations and calculations should be written in an Excel file only.
4. Students are supposed to submit one Excel file with all the questions on a different sheet.

**Q. No. 1.** Imagine you are a project manager overseeing multiple project teams within a dynamic organization. Each team is responsible for delivering innovative solutions within specific timeframes. To ensure optimal performance, you decide to apply the Standard Deviation Multi-Criteria Decision Making (MCDM) technique to evaluate and compare the teams based on various performance metrics.

|  |  |  |  |
| --- | --- | --- | --- |
| **Teams** | **On-Time Delivery** | **Budget Adherence(%)** | **Client Satisfaction Score (out of 100)** |
| A | 85 | 90 | 88 |
| B | 92 | 88 | 92 |
| C | 80 | 85 | 80 |
| D | 88 | 92 | 85 |
| E | 90 | 87 | 90 |

Estimate the weights of performance metrics. **10 Marks**

**Q. No. 2.** You are a supply chain consultant working with a manufacturing company facing challenges in its supply chain operations. The company produces high-quality electronic components and relies on a network of suppliers to ensure a smooth production process. However, there have been increasing disruptions, delays, and cost overruns in the supply chain, leading to concerns about operational efficiency and customer satisfaction. Your task is to identify the root causes of these issues and recommend solutions. The manufacturing company has identified several factors contributing to supply chain problems, including Supplier Performance (SP), Transportation Delays (TD), Quality Control (QC), Inventory Management (IM), and Production Scheduling (PS). They suspect that these factors are interconnected and affecting each other's performance. However, they are unsure about the strength and direction of these relationships and how to prioritise actions for improvement. Assume yourself to be a subject matter expert, offering ratings and crucial data essential to this context.

Analyse and visualise interrelationships among factors using the appropriate method.

**10 Marks**

**Q. No. 3** Case Study: Efficiency Evaluation of Regional Banks

This case study revolves around a regional banking group comprising five banks operating in different regions. The banking group aims to assess the efficiency of each bank to ensure optimal resource allocation, cost-effectiveness, and improved customer service. The collected data encompasses various inputs and outputs for each bank. The banking group consists of five regional banks, each offering a range of financial services. These banks differ in terms of their branch network, the number of employees, customer base, total deposits, operational costs, and customer satisfaction ratings.

**Input Indicators:**

Number of Branches: This represents the physical presence and infrastructure of each bank, indicating the scale of operations.

Number of Employees: The number of employees signifies the human resources allocated to run the bank's operations, including customer service, administration, and management.

Total Deposits (in $): Total deposits reflect the financial resources available to the bank, which can be considered as an input for financial institutions.

Operational Costs (in $): Operational costs represent the financial resources consumed by the bank to maintain its operations, covering expenses such as salaries, utilities, rent, and maintenance.

**Output Indicators:**

Customer Satisfaction Score (out of 100): Customer satisfaction scores are a measure of the quality of service provided by each bank. Higher scores indicate better customer experiences and service quality. The data collected for input and output indicators is given in the following table:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Bank** | **Number of Branches** | **Number of Employees** | **Total Deposits (in $)** | **Operational Costs (in $)** | **Customer Satisfaction Score (out of 100)** |
| Bank A | 20 | 150 | 500 million | 10 million | 85 |
| Bank B | 15 | 120 | 450 million | 9 million | 88 |
| Bank C | 25 | 180 | 600 million | 12 million | 83 |
| Bank D | 10 | 90 | 300 million | 6 million | 90 |
| Bank E | 30 | 200 | 700 million | 14 million | 86 |

1. What is the primary objective of the banking group in collecting and analyzing data for its individual banks? **4 Marks**
2. Assume the banking group wants to assess the efficiency of Bank A. Using the provided data, calculate the efficiency score for Bank A and interpret the result. **8 Marks**
3. Identify factors or areas should the banking group evaluate for improvement in Bank C's performance? **8 Marks**