**Operations Research**

**December 2022 Examination**

**1. As an OR consultant which are the operations research tools you will advocate for the defense equipment manufacturing firm and justify it with advantages. (10 Marks)**

# Ans 1.

# Introduction

The operation consultant's job is to offer the organization advice associated with different operational research devices that can be used to select the most effective feasible devices for defense equipment production companies. This kind of firm is a very essential and crucial company associated with susceptible operations. For such kinds of organizations, operation research is significant as they help them determine the most acceptable and feasible operation methods to carry out the organization's operations in an effective and reliable method. To perform this job in a reliable and reliable method, several different tools can be used by an

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**2. Discuss concepts and steps in OR model building with suitable examples of major OR models (10 Marks)**

**Ans 2.**

Introduction

Operational research can be called a method with which the decision-making procedure of an organization is made easy; with the assistance of such procedure, different analytical versions and various statistic-related tools are used to decide what is most efficient for the future of business. This area is considered a field of mathematics or data analytics, and some associate it with the field of management sciences. Nowadays, the term operation research is prevalent, particularly in companies that are of enormous dimension and need to take each of their

**3. Consider the transportation problem presented in the following table.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **D1** | **D2** | **D3** | **D4** | **Supply** |
| **S1** | **3** | **2** | **7** | **4** | **300** |
| **S2** | **2** | **3** | **6** | **5** | **400** |
| **S3** | **8** | **3** | **4** | **6** | **600** |
| **Demand** | **350** | **350** | **400** | **200** | **1300** |

**a. Total transportation cost by using North West corner method. (5 Marks)**

**Ans 3a.**

**Introduction**

The North West corner principle is a method for establishing an essential realistic alternative to a partial differential formula in which the essential variables are picked from the North - West corner of the equation (i.e., top left corner). Select the left upper side unit of the wheelchair worktop and assign numerous units as practical that amount to the most

**b. Use Vogel’s approximation method for the calculation of transportation cost. (5 Marks)**

**Ans 3b.**

**Introduction**

Vogel's Approximation Method (VAM) is a technique for determining the initial essential reasonable alternative to an optimal solution. Vogel's Approximation Method (VAM) is a recursive method that recognizes the first reasonable option to an optimal solution. Such as