**OR Assignment 1: Presentation**

My name is by Laiba Fatima and the topic of my presentation is TYPES OF MATHEMATICAL MODELS .

These models are to be implemented in Operation Research

Many OR models have been developed and applied to problems in business and industry. We’re going to be discussing 16 models and their names are:

1. Mathematical techniques

2. Statistical techniques

3.Inventory models

4. Allocation models

5. Sequencing models

6. Project scheduling by PERT and CPM

7. Routing models

8. Competitive models

9.-Queuing models

10. Simulation techniques

11. Decision theory

12. Replacement models

13. Reliability theory

14. Markov analysis

15. Advanced OR models

16. Combined methods.

1. Mathematical techniques

Mathematical models involve using equations and formulas to represent relationships between variables. Mathematical techniques in OR focus on applying mathematical tools such as linear programming, optimization, and mathematical programming to solve complex problems.

2. Statistical techniques

Statistical models involve the analysis of data to make predictions or decisions. In OR, statistical techniques are used to interpret and draw conclusions from data, providing a basis for decision-making.

3-Inventory models

Inventory models aim to optimize the management of stock levels to balance costs and meet demand efficiently. They involve determining the right amount of inventory to hold, reorder points, and order quantities.

4. Allocation models

Allocation models focus on distributing resources optimally. This can include assigning resources such as budget, manpower, or equipment to different tasks or projects to maximize efficiency.

5. Sequencing models

Sequencing models deal with determining the optimal order or sequence of tasks or processes. They are often used in manufacturing or service industries to improve efficiency and reduce processing time.

6. Project scheduling by PERT and CPM

PERT (Program Evaluation and Review Technique) and CPM (Critical Path Method) are project management tools used to plan, schedule, and control projects. They help identify critical paths and manage project timelines effectively.

7. Routing models

Routing models focus on finding the most efficient paths or routes in transportation or communication networks. They are essential for optimizing logistics and minimizing costs in supply chain management.

8. Competitive models

Competitive models involve strategies related to competition and decision-making in competitive environments. Game theory is often applied to analyze and optimize decisions in competitive scenarios.

9.-Queuing models

Queuing models analyze and optimize waiting lines. They help in understanding and managing the flow of customers or entities through a system, considering factors such as service rates and arrival patterns.

10. Simulation techniques

Simulation involves creating a model to imitate real-world scenarios. Simulation techniques are used to understand and predict the behavior of systems, especially in situations where analytical solutions are challenging.

11. Decision theory

Decision theory is concerned with making decisions in the face of uncertainty. It involves evaluating various options and choosing the best course of action based on probability, risk, and utility considerations.

12. Replacement models

Replacement models determine the optimal time to replace equipment or assets to minimize costs. These models consider factors such as maintenance costs, depreciation, and the expected lifespan of assets.

13. Reliability theory

Reliability theory focuses on the study of the reliability and performance of systems. It involves analyzing and modeling the probability of failure and the availability of systems over time.

14. Markov analysis

Markov analysis involves using Markov models to study and predict the probability of transitioning between different states in a system. It finds applications in areas like reliability, economics, and biology.

15. Advanced OR models

Advanced OR models encompass cutting-edge techniques and methodologies in operations research. These may include sophisticated mathematical and computational approaches developed to address complex and dynamic problems.

16. Combined methods.

Combined methods involve integrating multiple OR approaches to address complex problems. This could include combining mathematical programming, simulation, and optimization techniques to provide more robust and effective solutions.

Now we have come to the end of the presentation, thankyou for your attention