DEPARTMENT OF MANAGEMENT STUDIES
INDIAN INSTITUTE OF TECHNOLOGY, MADRAS

COMPREHENSIVE VIVA VOCE

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2. Roll No : MS17D018
3. Program : PhD
4. Guide : Dr. C. RAJENDRAN
5. Co-Guide : Dr. S. MADANKUMAR
6. Date of Joining : 10-07-2017
7. Area of Research : SCHEDULING
8. Date of Comprehensive Examination : 03-05-2019
9. Details of Courses Selected for Comprehensive Examination :

Sl.No.	Course No.	Course Name
1	MS5510	Logistics and Distribution Management
2	MS5570	Heuristics in Decision Making
3	MS5560	Services and Operations Management
4	MS6031	Data Analysis for Research
5	MS7080	Research Methodology in Business and Management

10. Syllabus for Comprehensive Viva:

1. MS 5510: Logistics and Distribution Management

- Introduction to Logistics Management.
- Linear Programming Problem, Assignment Problem and Transportation Problem.
- Modeling of Distribution Centre (DC) Location: Optimization of DC locations using Mixed Integer Programming.
- Vehicle Routing, Travelling Salesman Problems: Optimization algorithms and heuristic methods.
- Strategic, Tactical and Operational Analysis of Distribution Networks in Supply Chains: Framework and optimization approach.

2. MS 5570: Heuristics in Decision Making

- Dynamic programming.
- Introduction to Meta Heuristics: Genetic algorithm and Simulated annealing
- Applications to –

  (a) Production Management: Plant location and production scheduling.

  (b) Operations Management: Study of issues in supply chains, involving location and

capacity determination of suppliers, manufacturing plant, distribution centers and retail points.

(c) Financial Management: Capital budgeting

3. MS 5560: Service Operations Management

- Understanding services and service strategies, distinctive characteristics of service, service classification, services process matrix.
- Service package, service strategies, service blueprint.
- Measurement of service quality- SERQUAL, Quality service by design, service quality and continuous improvement, service productivity and measurement of services using DEA.

4. MS 6031: Data Analysis for Research

- Introduction to statistics and descriptive statistics – Numerical and categorical variables, scatter plot, box plot, histogram, measures of central tendency, measures of dispersion.
- Probability distributions - Random variables, continuous and discrete probability density function, cumulative density function, Uniform distribution, Bernoulli distribution, Binomial distribution, Poisson distribution, Geometric distribution, Exponential distribution, Normal distribution, Central Limit Theorem.
- Inferential statistics – Hypothesis testing - Single sample tests(z-test, t -test, chi-square test, proportion-z test), Two sample tests(z-test, t-test, paired t-test, proportion z-test), Type 1 & Type 2 errors, p-value, Level of significance, Confidence interval
- Regression – Simple linear regression, Correlation - Correlation coefficient, Coefficient of determination - R square, ANNOVA.

5. MS 7080 – Research Methodology in Business and Management

Introduction to research – Types of research – Descriptive, Experimental and Conceptual, Theory and Hypothesis, Research design, Methods of data collection-Qualitative and quantitative methods, Strategies associated with quantitative and qualitative approach, Sampling – Types of sampling.