

SEMESTER VI (Operations)

0201341: PURCHASE AND MATERIAL MANAGEMENT

Full Marks: 100

Material Management

Marks: 12

Introduction; Classification; Meaning; Objectives; Motives; Scope; Material Planning; Technique of Planning Materials; Process of Codification; Standardisation; Scheduling; Procurement; Purchasing; Inspection; Quality Control; Packaging; Storage; Inventory Control; Distribution; Disposal; Functions of Material Manager; Effects of Over Stocking and Under Stocking

Material Cost Management

Marks: 11

Introduction; Material Cost; Economic Order Quantity (EOQ) Models; Determination of Various Inventory Levels: Maximum Level, Minimum Level, Re-order Level, Danger Level, Calculation of Various Levels; ABC Analysis; XYZ Analysis

Material Requirements Planning

Marks: 11

Introduction; Definition; System Components; Demand Dependency; Objectives; Advantages; Limitations; Evaluation; Keeping MRP Current in a Changing Environment; Manufacturing Resource Planning (MRP II); JIT; KANBAN

Introduction to Enterprise Resource Planning (ERP)

Marks: 8

Introduction; History and Evolution; Meaning; Definition; Concept; Implementation of an ERP System; Advantages; Disadvantages; Applicability; Reasons for the Growth of the ERP Market; Success of the ERP

Inventory Models

Marks: 12

Introduction; Models for Accepting/Rejecting Discounts on Purchases, Fixed Order vs. Fixed Interval System: Cyclical Ordering or Fixed Period System (Time Based); Material Requirement Planning (MRP): Applicability of the MRP System, Inputs for MRP, MRP Process, Outputs of MRP, Benefits of MRP; Inventory Turnover: Interpretation of Inventory Turnover

Purchase Management

Marks: 16

Introduction: Objectives of Material Management; Functions of Purchase Department: Purchasing Function vs. Purchase Department, Procurement vs. Purchasing, Objectives of Purchasing; Purchase Requisition: Types of Purchase Requisitions; Purchase Procedure; Types of Purchasing: Forward Buying, Tender Buying, Systems Contract, Speculative Buying, Rate Contracts, Reciprocity in Buying, Zero Stock Buying, Blanket Orders; Vendor Management; Inspection of Materials: Pre Dispatch Inspection, Stage Inspection/Final Inspection, Document Inspection, Stores/Receipt Inspection, Third Party Inspection

Stores Management

Marks: 16

Introduction: Motive to Hold Inventory; Functions: Receipt of Material, Issue of Material, Return of Material, Transfer of Materials, Proper Storage Function; Valuation of Material; Valuation of Receipts; Valuation of Issues: First In First Out (FIFO) Method, Last In First out (LIFO) Method, Highest In First Out (HIFO) Method, Average Rate Method, Simple Average (SAR) Method, Weighted Average Rate (WAR) Method, Market Rate; Valuation of Returns

Quality Management

Marks: 14

Introduction; Definition of Total Quality Management: Defining Quality; Cost of Quality; Continuous Improvement (Kaizen): Plan to Study Cycle, Benchmarking; Employee Empowerment: Team Approach; Tools of Quality Control: Cause-and-Effect Diagrams, Flowcharts, Checklists, Control Charts, Scatter Diagrams, Pareto Analysis, Histograms; Process Management; Quality Standards: 8.8.1 ISO 9000 Standards, ISO 14000 Standards; Reason for TQM Failure

Reference Books:

1. Adam, Everette, E. & Ebert, R. J., 2003. *Production and Operations Management - Concepts Models and Behaviour*, New Delhi: Pearson Education.
2. Arora, K. C., 2004. *Production and Operations Management, Service Operations*, Firewall Media.
3. Bitner, M. J., 1992. *Servicescapes: The Impact of Physical Surroundings on Customers and Employees*, Journal of Marketing 56.
4. Bollinger, S., 1998. *Fundamentals of Plant Layout, Society of Manufacturing Engineers in Association with Richard, Muther and Associates*.
5. Brown, S., Blackmon, K., Cousins, P. & Maylor, H., 2012. *Operations Management: Policy, Practice and Performance Improvement*, Routledge.

0201311: INVENTORY MANAGEMENT

Full Marks: 100

Planning Foundations

Marks: 18

Defining Inventory; Nature: Raw Materials, Work-In-Process, Finished Goods, MRO Goods Inventory; Types: Transit Inventory, Buffer Inventory, Anticipation Inventory, Cycle Inventory; Top 5 Principles of Inventory Management; Inventory Planning: Basic Concepts; Need for Planning; Reasons for Maintaining Raw Material Inventory; Resource Inventory Management; Production Planning; Planning in Inventory Control; Hierarchy of Planning; Business Needs; An effective Material Organisational Structure; Methods of Valuation of Inventory; Ratio Analysis in Business; Inventory on the Income Statement: Inventory on the Balance sheet

Long Range Planning and Forecasting

Marks: 18

Introduction; Basics of Strategic Planning; Creation of Strategic Plan; Strategy of Team Development and Business Plans; Concepts of Business Planning; Forecasting Techniques: Forecasting Planning and Goals, Principles of Forecasting, Demand Patterns, Reasons for Forecasting, Time for Forecasts; Methods of Forecasting: Qualitative Forecasting Methods, Quantitative Forecasting Methods, Time Series Forecasting Methods; Measuring Forecast Errors; Criteria for Selecting a Forecasting Method

Sales and Operations Planning

Marks: 15

Basics of Sales and Operations Planning: Approaches; Definitions; Importance of S and OP Process; Operations Planning for S and OP Process; Theory of Constraints Affects Sales and Operations Planning: Systems as Chains, Throughput, Inventory, and Operating Expense, The Five Focusing Steps; Formal Work on the Case Study

Making Effective Presentations

Marks: 14

Basic Skills Required for Making Effective Presentations: Tools for Effective Presentations; Planning a Presentation; Preparation for Sales and Operation Plan: Develop a Proposed Sales and Operations Planning Policy and Meeting Agenda, Implement Full Sales and Operations Planning

Master Scheduling

Marks: 18

Introduction: Master Production Scheduling, Objectives of Master Production Scheduling, Functions of Master Production Schedule, Time Interval and Planning Horizon for MPS, Time Fences in Master Production Schedules, Guidelines for Master Scheduling, Updating of MPS, MPS in Produce-to-stock and Produce-to-order Firms, Length of Planning Horizon of MPS; Identify the Components Necessary to Develop a Master Production Schedule (MPS): Available-To-Promise (ATP), MPS time horizon, The Four Fundamentals; Describe and Develop the Master Schedule (MS): Inputs to MPS, Outputs of MPS, MPS Terminology, Misconception about MPS, The Logic of Master Schedule, Twelve Principles of Master Scheduling, Importance of Master Scheduling in Production Plan

Future Planning Topics

Marks: 17

Identify and discuss emerging topics in planning; Emerging Trends in Inventory Management: Inventory Optimization (IO), Inventory Optimization (IO) Technologies, Just In Time (JIT), The Future of Inventory Management in the Era of E-Commerce; Inventory Modelling Technology: Modelling Demand Behaviour

Reference Books:

1. Piasecki, D.J., 2003. Inventory Accuracy: People, Processes, & Technology, Ops Pub
2. Proud, J F., 2007. Master Scheduling: A Practical Guide to Competitive Manufacturing, 3rd ed., John Wiley and Sons, p.657.
3. Rizvi, A. M., 2005. Effective Technical Communication, Tata McGraw-Hill Education.
4. Silver, E. A., Pyke, D.F and Peterson, R., 1998. Inventory Management and Production Planning and Scheduling, 3rd ed., Wiley.
5. Singh, H., 2009. A Practical Guide for Improving Sales and Operations Planning, Supply Chain Consultants.
6. Tersine, R. J., 1993. Principles of Inventory and Materials Management, 4th ed., Prentice Hall.
7. Toomey, J. W., 2000. Inventory Management: Principles, Concepts and Techniques, Springer, p.228.

0201099: JUST-in-TIME AND LEAN

Full Marks: 100

Introduction to Just in Time (JIT)

Marks: 15

Introduction: History and Philosophy, Cultural Aspect; Just in Time (JIT) Approaches: Cycle Time Reduction, Waste Reduction, Flow Breakdowns; Scope: JIT Application Profile, Seven Wastes in JIT; Elements of JIT: People Involvement, Plants, Systems, Purchasing; Goals of JIT; Benefits and Limitations: Benefits, Limitations; Implementation of JIT Concept: Keys to Successful Implementation of JIT; Understanding and Controlling Variation: Sources of Variation, Causes of Variation, Variability, Forms of Variability, Responses to Variability, Reducing Variability

Push and Pull Systems

Marks: 20

Introduction to Materials Requirement Planning (MRP) “Push” System: Need, Terms Used in Material Resource Planning (MRP); Basic Material Requirement Planning Concepts; Factors Affecting the Computation of MRP; Objectives; Prerequisites and Assumptions of MRP; Inputs to MRP: Master Production Schedule (MPS), Bill of Material (BOM), Inventory Record File; MRP Outputs: Primary Outputs, Secondary Outputs, Inventory Forecast; MRP Logic in Brief: Advantages and Disadvantages of MRP; Explaining Push and Pull Models: Advantages of “Push” Model, Disadvantages of “Push” Model, Understanding the Pull Model, Advantages of “Pull” Model, Disadvantages; Evaluation of MRP Push versus JIT Pull: Combining MRP and JIT

Just-In-Time (JIT) and Competitive Advantage

Marks: 15

Relationship between JIT and Competitive Advantage: JIT Contribution to Competitive Advantage; Main Advantage of Material Requirement Planning; MRP and JIT Comparison; Advantages and disadvantages of JIT and MRP: Advantages of JIT, Disadvantages of JIT, Limitations and Advantages of MRP; Limitations and Implementation Barriers of JIT

JIT Layout

Marks: 15

Plant Layout: Objectives, Principles; Classification: Process Layout, Product Layout, Combination Layout, Fixed Position Layout, Group Layout (Cellular Layout); Service Layout; JIT Layout: Distance Reduction, Increased Flexibility, Impact on Employee, Reduced Space and Inventory; JIT Layouts and Design Flows; JIT Applications for Line Flow; JIT Applications for JIT Shops

SMED and Kanban

Marks: 20

Introduction to Single Minute of Die (SMED): History; Implementation: Formal Method; Introduction to Kanban: A Brief History of Kanban, Reasons for Implementing Kanban Scheduling, Kanban Implementation Process, Keys to successful Implementation of Kanban, Forming Kanban Team; Conduct Data Collection: Gather Data, Analyse the Data; Size the Kanban: Determining the Replenishment Cycle, Implications of Scrap, Unplanned Downtime and Changeover Times on Replenishment Intervals, Calculating the Buffer, Calculating the Number of Kanban Containers, Perform a Reality Check; Developing a Kanban Design; Training for Kanban: Developing the Training Material, Serving as a Coach and Mentor, Initial Start-up and Common Pitfalls; Auditing the Kanban; Improving the Kanban

Lean Systems

Marks: 15

Introduction to Lean Manufacturing: Objectives, Key Principles, Elements of Lean, Characteristics of Successful Lean Manufacturing, Advantages and Disadvantages, Lawson Lean Manufacturing Solutions, Nine Myths about Lean; History of Lean System: Lean Manufacturing Tools and Techniques, Cellular Manufacturing, Continuous Improvement, Just-In-Time, Production Smoothing, Standardisation of Work, Total Productive Maintenance, Other Waste Reduction Techniques; Implementing Lean

Reference Books:

1. Brown, S. 2000. *Strategic Operations Management*. Butterworth-Heinemann.
2. Carreira, B., 2004. *Lean Manufacturing That Works: Powerful Tools for Dramatically Reducing Waste and Maximizing Profits*. McGraw-Hill Professional.
3. Dennis, P., 2002. *Lean Production Simplified: A Plain-Language Guide to the World's Most Powerful Production System*. Productivity Press.
4. Gross, J. & McInnis, K., 2008. *Kanban Made Simple*. Amacom.
5. Hay, E., 1988. *Just-In-Time Breakthrough: Implementing the New Manufacturing Basics*. John Wiley & Sons Inc.
6. Hayes, R., & Wheelwright, S., 1988. *Dynamic Manufacturing: Creating the Learning Organization*. Free Press.

0201343: CONSUMER BEHAVIOUR

Full Marks: 100

Consumer Behaviour-Nature, Scope and Applications

Marks: 12

Introduction; Nature: The Consumer, The Decision Process; Scope of Consumer Behaviour; Decision Process; Individual Determinants; External Environment; Applications of Consumer Behaviour in Marketing: Analysing Market Opportunity, Selecting the Target Market, Determining the Product Mix, Use in Non-Profit and Social Marketing

Consumer Behaviour and Lifestyle Marketing

Marks: 12

Introduction; Demographics, Psychographics and Lifestyle; Characteristics of Lifestyle; Influences; Approaches to Study Lifestyle: AIO inventories; Application of AIO Studies; Lifestyle Profiles in Indian Context; VALS System of Classification: VALS-2 Classification, Applications of VALS classification; Applications of Lifestyle Marketing

Organisational Buying Behaviour

Marks: 11

Introduction; What is Organisational Buying Behaviour?; Organisational Buying Behaviour-Some Typical Characteristics; Who are the Organisational Customers?; What Influences Organisational Buying?; The Organisational Buying Situations; Organisational Buying Behaviour: Some Models; The Selection of a Supplier

Purchase Process and Post-Purchase Behaviour

Marks: 14

Introduction; An Overview-of Purchase Process; Buying Stage and Situational Influences: Physical Surroundings, Social Surroundings, Task Definition, Temporal Factors, Antecedent States; Steps to Benefit from Situational Influences; An Anatomy of Non-Store Buying; Routes of Non-Store Buying; Developing an Attitude to Post-Purchase Behaviour; Theories of Post-Purchase Evaluation; Marketers' Response Strategies: Monitor Regularly the Consumer Reactions, Bring Product Quality under Marketing Responsibility, Handle Complaints Quickly and Responsibly, Be a Courteous and Helpful Host, State Only Realistic Product Claims, Help Consumer on Product Use, Sell 'Solution' instead of Product, Assure Even after the Purchase is Over

Consumer and Decision Making

Marks: 15

Introduction; Decision Defined; Levels of Consumer Decision Making: Extensive Problem Solving, Limited Problem Solving, Routinized Response Behaviour; Models of Consumers' Decision Making: Economic View, Passive View, Cognitive View, Emotional View; Stages of Consumer Decision Making: Input, Process, Output; Consumer Information Processing; Information Processing Defined; Stages of Information Processing: Exposure, Attention, Personal Determinants of Attention, Stimulus Determinants of Attention, Comprehension, Acceptance, Retention; Types of Information Sought; Sources of Information; Determinants of Benefits and Cost of Information Search: Market Characteristics, Product Characteristics, Consumer Characteristics, Situation Characteristics; Marketing Strategies Based on Information Search Patterns

Family Buying Influences, Family Life Cycle and Buying Roles

Marks: 13

Introduction: The Family as a Consuming Unit; Family Buying Influences: Nature and Types of Influences; Consumer Socialisation; Intergenerational Influences; Family Decision-Making; Family Role Structure and Buying Behaviour; The Dynamics of Family' Decision-Making: Purchase Influences and Role Specialisation; The Influence of Children; The Family Life Cycle Concept; Implications of Family Decision-Making for Marketing Strategy

Market Research and Consumer Behaviour

Marks: 13

Introduction; Relevance of Market Research with Consumer Behaviour; Approaches to Consumer Behaviour Research: Traditional Approach, Current Approach: 'Dialectical'; Research Perspectives on Consumer Behaviour; Research Paradigms in Consumer Behaviour: Quantitative Research in Consumer Behaviour, Qualitative Research in Consumer Behaviour

Consumer Behaviour Theory: Approaches and Models

Marks: 10

Consumer Behaviour and Consumer Decision Making; Theoretical Approaches to the Study of Consumer Behaviour: Economic Man, Psychodynamic Approach, Behaviourist Approach, Cognitive Approach; Cognitive Models of Consumer Behaviour

Reference Books:

1. Mower, J. C., 1987. *Consumer Behaviour*. MacMillan Publishing Co.
2. Perrault, W. D., McCarthy J.E., 2000. *Essentials of Marketing*. McGraw Hill College Division.
3. Pfeiffer, I., 2002. *Consumer Behavior - Consumer as Decision Maker with cultural background*. GRIN Verlag.
4. Samli, A. C., 1995, *International Consumer Behavior: Its Impact on Marketing Strategy Development*, Greenwood Publishing Group.
5. Schiffmann, L. G. and Kanuk, L. L., *Consumer Behaviour*, 3rd ed., Prentice Hall of India, New Delhi.
6. Schiffmann, L.G. and Kanuk, L. L., *Consumer Behaviour*. Prentice Hall of India, New Delhi.
7. Wilkie, W. L., 1986. *Consumer Behaviour*. John Wiley & Sons Inc.

0201100: PRODUCTION PLANNING AND CONTROL

Full marks: 100

Production Planning and Control

Marks: 10

Introduction; Production Management and Production Planning; Impact of Industrial Revolution on Production Process; Objectives; Production Planning and Control Functions; Production Planning and Control Procedures; Factors Affecting Production Planning And Control; Role of the Human Relations Movement in Production; Role of Computer and Advances in Production Technology

Objectives, Scope, and Importance of Production Planning and Control

Marks: 13

Introduction; Objective; Scope; Importance; Limitations; Features: Production Planning, Production Control; Comparing Production Planning and Production Control; Establishing a Production Planning and Control Department (PPC): Status of PPC in the Company, Extend of Centralisation, The Appropriate Internal Structure

Methods of Production

Marks: 10

Introduction; Classification of Production Methods; Intermittent Production: Project Production, Job Production, Batch Production; Continuous Production: Mass or Flow Production, Process Production; Factors Affecting Selection Production Process

Plant Layout

Marks: 7

Introduction: Objectives; Principles; Advantages; Factors Affecting; Types: Process Layout, Product or Line Processing Layout, Fixed or Stationary Layout, Cellular Manufacturing Layout, Combined or Hybrid Layout

Materials Requirements Planning

Marks: 12

Introduction; Definition; System Components; Demand Dependency; Objectives; Advantages; Limitations; Evaluation; Keeping MRP Current in a Changing Environment; Manufacturing Resource Planning (MRP II); JIT; KANBAN

The Production Order

Marks: 8

Introduction; Objectives and Functions; Guidelines for preparing Work Orders; Tools of Production Order: Process Analysis Charts, Charts for Analysis of Equipment Utilisation, Master Scheduling

Production Scheduling and Loading

Marks: 7

Introduction; Objectives and Scope of Scheduling; Types of Scheduling; Techniques of Scheduling: Gantt Charts, Johnson's Two Machine Algorithm, Index Method, CPM and PERT Techniques, The Run out Approach

Types of Maintenance Management

Marks: 10

Introduction; Breakdown or Corrective Maintenance Management; Preventive Maintenance; Routine Maintenance; Predictive Maintenance; Planned Maintenance; Total Productive Maintenance (TPM)

Inspection & Quality Control

Marks: 13

Introduction; Inspection: Inspection Vs. Quality Control, Objectives, Steps in the Process, Functions, Problems; Types: Centralised or Crib Inspection, Decentralised or Floor Inspection; Quality Control: Objectives of Quality Control, Advantages or Importance of Quality Control; Statistical Quality Control (SQC): Advantages of SQC; Control Chart: Types of Control Chart

Work Measurement & its Techniques

Marks: 12

Introduction; Objectives; Elements; Types; Benefits of Work Measurement; Techniques of Work Measurement: Time Study, The Synthesis Method, Predetermined Motion Time Systems (PMTS), Analytical Estimating, Work Sampling

Reference Books:

1. Carol A. Ptak, (1996). MRP and Beyond: A Toolbox for Integrating People and Systems. Irwin Professional Publishing. 225 pages.
2. Donald H. Sheldon, (2006). World Class Master Scheduling. J. Ross Publishing. 247 pages
3. Fundamentals of Production Planning and Control. Stephen N. Chapman (Paperback - Mar 11, 2005) Publisher: Prentice Hall (March 11, 2005). 288 pages.

4. George Plossl, (1994). Orlicky's Material Requirements Planning. McGraw-Hill Publications. 2nd edition. 311 pages.
5. Gregory T. Haugan, (2001). Project Planning and Scheduling. Management Concepts. 120 pages.
6. Handbook of Cellular Manufacturing Systems. Shahrukh A. Irani. Wiley-Interscience; 1st edition (April 15, 1999). 672 pages.