# SRM VALLIAMMAI ENGINEERING COLLEGE

**(An Autonomous Institution)**

SRM Nagar, Kattankulathur – 603 203

## DEPARTMENT OF MANAGEMENT STUDIES

**QUESTION BANK**

**III SEMESTER**

**PBA 502 – MATERIALS MANAGEMENT**

**Regulation – 2023**

**Academic Year 2025 - 2026**

**Prepared by**

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| UNIT – I – INTRODUCTION | | | |
|---|---|---|---|
| **SYLLABUS: Materials Management Process – Purpose – Aggregate planning – Role, need, strategies, costs techniques, approaches – Master scheduling – Manufacturing planning and control system – Manufacturing resource planning – Enterprise resource planning – Making the production plan.** | | | |
| **PART- A** | | | |
| **S.NO** | **QUESTIONS** | **BT LEVEL** | **COMPETENCE** |
| **1.** | What is a value package in production process? | Level 1 | Remembering |
| **2.** | What is operations management? | Level 2 | Understanding |
| **3.** | Define order qualifiers. | Level 1 | Remembering |
| **4.** | What are order winners? | Level 1 | Remembering |
| **5.** | What is aggregate planning? | Level 1 | Remembering |
| **6.** | List the objectives of aggregate planning. | Level 2 | Understanding |
| **7.** | What is MPS? | Level 1 | Remembering |
| **8.** | List the chief objectives of developing an MPS. | Level 2 | Understanding |
| **9.** | What is FAS? | Level 1 | Remembering |
| **10.** | What are make-to-stock products? | Level 1 | Remembering |
| **11.** | List out the factors that govern the operating environment. | Level 1 | Remembering |
| **12.** | What do you understand by MPC? | Level 2 | Understanding |
| **13.** | What is MRPII? | Level 1 | Remembering |
| **14.** | Define Inventory. | Level 2 | Understanding |
| **15.** | What is the American Production and Inventory Control Society's definition ofMRP? | Level 1 | Remembering |
| **16.** | List the chief benefits of ERP. | Level 1 | Remembering |
| **17.** | What are the product groups? | Level 2 | Understanding |
| **18.** | What is make-to-order strategy? | Level 2 | Understanding |
| **19.** | What is subcontracting? | Level 1 | Remembering |
| **20.** | List the risks carried by ERP. | Level 2 | Understanding |
| **21.** | What is closed loop MRP? | Level 2 | Understanding |
| **22.** | Define Materials Management. | Level 2 | Understanding |
| **23.** | What are Assemble-to-order products? | Level 1 | Remembering |
| **24.** | State the inputs of MRP system. | Level 1 | Remembering |

| PART- B | | | |
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| **S.NO** | **QUESTIONS** | **BT LEVEL** | **COMPETENCE** |
| **1.** | How do environmental factors affect a specific organization's operations? | Level 3 | Applying |
| **2.** | Analyze how different factors influence aggregate planning decisions in a manufacturing firm | Level 4 | Analyzing |
| **3.** | Apply different aggregate planning strategies to a given business scenario. How do they address planning needs? | Level 3 | Applying |
| **4.** | Analyze the interrelationship between various MPC system activities and their impact on production efficiency. | Level 4 | Analyzing |
| **5.** | Distinguish between aggregate planning and MPS. | Level 3 | Applying |
| **6.** | Analyze the relationship between aggregate planning variables and the development of a Master Production Schedule (MPS). | Level 4 | Analyzing |
| **7.** | What do you mean by materials planning? Describe the objectives and prerequisites of a good materials management system. | Level 4 | Analyzing |
| **8.** | Explain the advantages of master scheduling and manufacturing resource planning. | Level 3 | Applying |
| **9.** | Construct a flowchart to demonstrate how MRP I and MRP II processes function in a production system. | Level 3 | Applying |
| **10.** | Analyze the benefits and limitations of MRP-II in terms of their impact on operational performance. | Level 4 | Analyzing |
| **11.** | How would you apply the knowledge of ERP evolution to understand the development of modern ERP systems in an organization? | Level 3 | Applying |
| **12.** | Compare the benefits and limitations of ERP systems and assess their impact on different functional areas of a business. | Level 4 | Analyzing |
| **13.** | Elaborate the 8 key elements for successful ERP implementation. | Level 4 | Analyzing |
| **14.** | How would you apply risk management strategies to address the 3 key risks involved in ERP implementation? | Level 3 | Applying |
| **15.** | Difference between MRP and ERP. | Level 3 | Applying |
| **16.** | Analyze different production planning strategies and evaluate their suitability for various manufacturing environments. | Level 4 | Analyzing |
| **17.** | How do you prepare the production plan? Explain with a suitable example. | Level 3 | Applying |

| UNIT – II– MATERIALS PLANNING | | | |
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| **SYLLABUS: Materials requirements planning – Bill of materials – Resource requirement planning – Manufacturing resource planning – Capacity management – Scheduling orders – Production activity control – Codification.** | | | |
| **PART- A** | | | |
| **S.NO** | **QUESTIONS** | **BT LEVEL** | **COMPETENCE** |
| **1.** | What is MRP? | Level 1 | Remembering |
| **2.** | Define Dependent Demand. | Level 2 | Understanding |
| **3.** | How MRP is being used? | Level 1 | Remembering |
| **4.** | What is Lead time? | Level 1 | Remembering |
| **5.** | What is bill of materials? | Level 1 | Remembering |
| **6.** | List the 3 points of consideration in bill of materials. | Level 2 | Understanding |
| **7.** | What is product tree? | Level 1 | Remembering |
| **8.** | What is resource requirement planning? | Level 2 | Understanding |
| **9.** | What is bill of materials? | Level 1 | Remembering |
| **10.** | What is planning horizon? | Level 1 | Remembering |
| **11.** | Define capacity. | Level 1 | Remembering |
| **12.** | What is capacity planning? | Level 2 | Understanding |
| **13.** | List the benefits of production scheduling. | Level 1 | Remembering |
| **14.** | What is PAC? | Level 2 | Understanding |
| **15.** | What are the three categories in which manufacturing processes can be classified? | Level 1 | Remembering |
| **16.** | What is intermittent manufacturing? | Level 1 | Remembering |
| **17.** | What is codification? | Level 2 | Understanding |
| **18.** | List the advantages of codification. | Level 2 | Understanding |
| **19.** | What is bar coding? | Level 1 | Remembering |
| **20.** | What is the manufacturing application of bar codes? | Level 2 | Understanding |
| **21.** | What is flow manufacturing? | Level 2 | Understanding |

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| **22.** | What is arbitrary approach in coding? | Level 2 | Understanding |
| **23.** | What is symbolic approach in coding? | Level 1 | Remembering |
| **24.** | Define scheduling. | Level 1 | Remembering |

| **PART- B** | | | |
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| **S.NO** | **QUESTIONS** | **BT LEVEL** | **COMPETENCE** |
| **1.** | How would you apply the MRP process to plan material requirements for a manufacturing order? | Level 3 | Applying |
| **2.** | Analyze various materials planning methods and evaluate their effectiveness in different organizational contexts. | Level 4 | Analyzing |
| **3.** | How would you apply the steps of materials requirement planning (MRP) to develop a production schedule for a given case? | Level 3 | Applying |
| **4.** | Analyze the structure of a BOM and evaluate its role in different stages of the manufacturing process. | Level 4 | Analyzing |
| **5.** | Explain the various stages of manufacturing resource planning with suitable diagram. | Level 3 | Applying |
| **6.** | How would you apply different alternative sources of capacity to solve a capacity planning problem in a manufacturing setup? | Level 3 | Applying |
| **7.** | Discuss the process of capacity requirement planning. | Level 4 | Analyzing |
| **8.** | Explain in detail RCCP & CRP. | Level 3 | Applying |
| **9.** | How would you apply RCCP and CRP techniques to solve a production scheduling problem? | Level 3 | Applying |
| **10.** | Analyze the differences between forward and backward scheduling and evaluate their advantages and disadvantages in various manufacturing scenarios. | Level 4 | Analyzing |
| **11.** | How would you apply order scheduling to improve production efficiency in a manufacturing setting? | Level 3 | Applying |
| **12.** | Compare the categories of the PAC system and discuss their impact on production planning and control. | Level 4 | Analyzing |
| **13.** | What is flow manufacturing? Discuss its characteristics in detail. | Level 4 | Analyzing |
| **14.** | Demonstrate the use of bar-coding technology to solve common tracking problems in a warehouse. | Level 3 | Applying |
| **15.** | Explain the process of production activity control with suitable examples. | Level 3 | Applying |

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| **16.** | Evaluate the benefits and challenges of adopting international codification standards in global supply chains. | Level 4 | Analyzing |
| **17.** | What are the requirements for codes and discuss any two company's codification process. | Level 3 | Applying |

| **UNIT – III– INVENTORY MANAGEMENT** | | | |
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| **SYLLABUS: Policy Decisions – Objectives – Control – Retail Discounting Model, Newsvendor Model – EOQ and EBQ models for uniform and variable demand with and without shortages – Quantity discount models – Probabilistic inventory models.** | | | |
| **PART- A** | | | |
| **S.NO** | **QUESTIONS** | **BT LEVEL** | **COMPETENCE** |
| **1.** | Why are logistical strategies designed? | Level 1 | Remembering |
| **2.** | What is inventory? | Level 2 | Understanding |
| **3.** | List the objectives of inventory management. | Level 1 | Remembering |
| **4.** | Enumerate any 2 problems found in inventory management. | Level 1 | Remembering |
| **5.** | What is retail discounting model? | Level 1 | Remembering |
| **6.** | What is EOQ? | Level 2 | Understanding |
| **7.** | What is EBQ? | Level 1 | Remembering |
| **8.** | List out the cost associated with inventory management. | Level 2 | Understanding |
| **9.** | Define holding/carrying cost. | Level 1 | Remembering |
| **10.** | Define setup /ordering cost. | Level 1 | Remembering |
| **11.** | Define shortage/stock out cost. | Level 1 | Remembering |
| **12.** | What are the variables of EBQ model? | Level 2 | Understanding |
| **13.** | What is quantity discount model? | Level 1 | Remembering |
| **14.** | What are advantages of holding a sizeable inventory? | Level 2 | Understanding |
| **15.** | What are the drawbacks of carrying a large inventory? | Level 1 | Remembering |
| **16.** | What is Newsvendor model? | Level 1 | Remembering |
| **17.** | What is probabilistic inventory model? | Level 2 | Understanding |
| **18.** | Classify inventory management models. | Level 2 | Understanding |
| **19.** | Define safety stock. How can safety stock be computed? | Level 1 | Remembering |
| **20.** | How is the reorder point determined? Illustrate with an example and graphically. | Level 2 | Understanding |

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| **21.** | What is Quantity discount. | Level 2 | Understanding |
| **22.** | Why are logistical strategies designed? | Level 2 | Understanding |
| **23.** | What is inventory? | Level 1 | Remembering |
| **24.** | List the objectives of inventory management. | Level 1 | Remembering |

| **PART- B** | | | |
|---|---|---|---|
| **S.NO** | **QUESTIONS** | **BT LEVEL** | **COMPETENCE** |
| **1.** | How would you apply the advantages of holding sizeable inventory to improve production continuity in a manufacturing process? | Level 3 | Applying |
| **2.** | Discuss the concept of Inventory control systems. | Level 3 | Applying |
| **3.** | Analyze the assumptions and components of the newsvendor model and evaluate its effectiveness in managing inventory risk. | Level 4 | Analyzing |
| **4.** | Explain the EOQ and EBQ Models for uniform and variable demand with and withoutshortage. When is each model used in a firm? | Level 4 | Analyzing |
| **5.** | List out the need and objectives of inventory management. How is it critical in maintaining correct level of stocks in a firm? | Level 3 | Applying |
| **6.** | Demonstrate the use of specific control techniques to achieve policy objectives in a real-world scenario. | Level 3 | Applying |
| **7.** | Raw material requirements of a Rudraksha automobiles are fulfilled by a supplier/vendor. The annual demand of the firm is 4500 units; ordering costs and carrying costs are ₹. 50 per order and 10% of the purchase price per unit per month respectively. If the purchase price is ₹.1 per unit, find the following.<br>i) Economic Order Quantity(EOQ)<br>ii) Total cost w.r.t. EOQ,<br>iii) Number of orders placed in a year and<br>Time between two successive orders(lead time) | Level 4 | Analyzing |
| **8.** | Akshaya air craft company uses rivets at an approximate customer rate of 2500 kg per year. Each unit costs ₹. 30 per kg and the company personnel estimate that it cost carrying cost ₹.130 to place an order, and that the carrying costs of inventory is 10% per year. How frequently should order ₹. Of rivets be placed? Also determine the optimum size of each order. | Level 4 | Analyzing |
| **9.** | Amarnath aircraft uses rivets at an approximately constant rate 5000 kg per year. The rivets costs ₹.20 per kg and the company personnel | Level 4 | Analyzing |

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| | estimate that it cost ₹.200 to place an order and the carrying cost of inventory is 10% per year.<br>i) How frequently should orders for rivets be placed and what quantities should be ordered?<br>ii) If the actual costs are ₹.500 to place an order and 15% for carrying cost the optimum policy would change. How much is the company losing per year because of imperfect cost information? | | |
| **10.** | The demand for one of the components used by Chaanakya industries is 9000 units per year. The holding/carrying cost of each unit is ₹.500 per year, the ordering cost is ₹.1000 per order and the shortage cost is ₹.1500 per unit per year. Find the<br>i) Optimal values of economic order quantity<br>ii) Maximum inventory<br>iii) Maximum shortage quantity<br>iv) Cycle time(t)<br>v) Inventory period(T1)<br>iii) Shortage period(T2) | Level 4 | Analyzing |
| **11.** | The annual demand for Bilva Group of companies is 24000 units. The carrying cost is ₹.0.40/unit/year, the ordering cost is ₹.20 per order and the back order cost is ₹.10/unit/year. Find the optimal values of the following.<br>i) EOQ<br>ii) Maximum inventory<br>iii) Maximum shortage quantity<br>iv) Cycle time<br>v) Inventory period(t1)<br>vi) Shortage period(t2). | Level 4 | Analyzing |
| **12.** | Contractor Vinaayak has to supply 10000 bearings per days to Kumaran industries. He finds that when he starts a production run, he can produce 25000 bearings per day. The cost of holding a bearing per day is ₹. 0.0020 per bearing per day and the setup cost of a production run is ₹.720. How frequently should the production be planned? | Level 4 | Analyzing |
| **13.** | The demand for an item in a company is 18000 units per year, and the company can produce the item at a rate of 3000 per month. The cost of one setup is ₹.500 and the holding cost of one unit is ₹.1 per unit per month. The shortage cost of one unit is ₹.20 per month. Determine the optimum manufacturing quantity and the number of | Level 4 | Analyzing |

<table>
<tr><td></td><td>shortages. Also determine the manufacturing time and time between setups.</td><td></td><td></td></tr>
<tr><td>14.</td><td>Annual demand for Anubava enterprise for an item is 6000 units. Ordering cost is ₹.600 per order. Inventory carrying cost is 18% of the purchase price/unit/year. The price breakups are as shown below,<br><br><table><tr><th>Quantity</th><th>Price(in ₹.) per unit</th></tr><tr><td>0≤Q1≤2000</td><td>20</td></tr><tr><td>2000≤Q2≤4000</td><td>15</td></tr><tr><td>4000≤Q3≤</td><td>9</td></tr></table>Find the optimal order size.</td><td>Level 3</td><td>Applying</td></tr>
<tr><td>15.</td><td>The daily demand of Sesame Oil at a kiosk follows a discrete distribution as given below.<br><br><table><tr><th>S. No.</th><th>Demand, D</th><th>Probability P</th></tr><tr><td>1</td><td>25</td><td>0.2</td></tr><tr><td>2</td><td>26</td><td>0.11</td></tr><tr><td>3</td><td>27</td><td>0.10</td></tr><tr><td>4</td><td>28</td><td>0.09</td></tr><tr><td>5</td><td>29</td><td>0.08</td></tr><tr><td>6</td><td>30</td><td>0.12</td></tr><tr><td>7</td><td>31</td><td>0.14</td></tr><tr><td>8</td><td>32</td><td>0.05</td></tr><tr><td>9</td><td>33</td><td>0.04</td></tr><tr><td>10</td><td>34</td><td>0.04</td></tr><tr><td>11</td><td>35</td><td>0.03</td></tr></table><br>The purchase price of the Sesame oil is ₹.8 per packet. The selling price is ₹.11 per packet. If the sesame oil bottles are not sold within the day of purchase, they are sold at ₹. 4 per bottle to hotels for secondary use. Find the optimal order size of the sesame oil.</td><td>Level 4</td><td>Analyzing</td></tr>
<tr><td>16.</td><td>How would you apply the probabilistic inventory model and quantity discount model to optimize inventory decisions in uncertain demand scenarios?</td><td>Level 3</td><td>Applying</td></tr>
<tr><td>17.</td><td>Explain the advantages and disadvantages of quantity discount model and probabilisticinventory model.</td><td>Level 4</td><td>Analyzing</td></tr>
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| UNIT – IV – PURCHASING MANAGEMENT | | | |
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| **SYLLABUS: Establishing specifications – Selecting suppliers – Price determination – Forward buying – Mixed buying strategy – Price forecasting in purchasing – Buying seasonal commodities– Purchasing under uncertainty– Demand management – Purchasing of capital equipment– International purchasing.** | | | |
| **PART- A** | | | |
| **S.NO** | **QUESTIONS** | **BT LEVEL** | **COMPETENCE** |
| **1.** | What are the basic types of purchase contracts? | Level 1 | Remembering |
| **2.** | What are the common objectives of the purchasing function? | Level 2 | Understanding |
| **3.** | What are the approaches for price determination? | Level 1 | Remembering |
| **4.** | What is a purchase order? | Level 1 | Remembering |
| **5.** | What is a limited tender? | Level 1 | Remembering |
| **6.** | What is BOM? | Level 2 | Understanding |
| **7.** | What are the five R's of purchasing? | Level 1 | Remembering |
| **8.** | What is forward buying? | Level 2 | Understanding |
| **9.** | List out the factors affecting supplier selection. | Level 1 | Remembering |
| **10.** | What is Blanket order? | Level 1 | Remembering |
| **11.** | What is diversified purchasing? | Level 1 | Remembering |
| **12.** | What is Industrial buying? | Level 2 | Understanding |
| **13.** | What is competitive bidding? | Level 1 | Remembering |
| **14.** | Define forecasting. | Level 1 | Understanding |
| **15.** | What is seasonal index? | Level 1 | Remembering |
| **16.** | What are the different methods of vendor rating? | Level 1 | Remembering |
| **17.** | What are made-to-order items? | Level 2 | Understanding |
| **18.** | What is contract buying? | Level 2 | Understanding |
| **19.** | What is LCSS? | Level 1 | Remembering |
| **20.** | What is JIT? | Level 2 | Understanding |
| **21.** | What is supply seasonality? | Level 2 | Understanding |
| **22.** | What is the concept of 'best buy'? | Level 2 | Understanding |
| **23.** | What are risks involved in seasonal commodities? | Level 1 | Remembering |
| **24.** | Write a short note on vendor rating. | Level 1 | Remembering |

| PART- B | | | |
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| **S.NO** | **QUESTIONS** | **BT LEVEL** | **COMPETENCE** |
| **1.** | Explain the responsibilities of a Purchase manager. | Level 3 | Applying |
| **2.** | Discuss the factors affecting supplier selection. | Level 3 | Applying |
| **3.** | Describe the forward buying and mixed buying strategy with examples. | Level 4 | Analyzing |
| **4.** | Explain the various price forecasting methods in materials management | Level 4 | Analyzing |
| **5.** | Explain the procedure involved in selecting suppliers. | Level 3 | Applying |
| **6.** | Describe the different methods of price determination. | Level 4 | Analyzing |
| **7.** | Describe the steps involved in purchasing process in an organization. | Level 3 | Applying |
| **8.** | How does a firm forecast demand and price of materials for purchase? | Level 4 | Analyzing |
| **9.** | Explain the merits and demerits of forward buying and mixed buying strategy with day today examples. | Level 3 | Applying |
| **10.** | Discuss the advantages and limitations of International Purchasing. | Level 4 | Analyzing |
| **11.** | Explain the Strategies for Trading Seasonal Trends in Commodities. | Level 3 | Applying |
| **12.** | Elaborate the impact of supply and demand in seasonal commodities. | Level 3 | Applying |
| **13.** | Describe the Decisions towards purchasing under Uncertainty with examples. | Level 4 | Analyzing |
| **14.** | Elucidate Delphi concept and its procedures used in case of buying under uncertainty. | Level 3 | Applying |
| **15.** | Elaborate the procurement under demand management. | Level 4 | Analyzing |
| **16.** | Explain the considerations of purchasing a capital equipment. | Level 3 | Applying |
| **17.** | Describe the strategies and logistical challenges in International Purchasing. | Level 4 | Analyzing |

| UNIT –V– WAREHOUSE MANAGEMENT | | | |
|---|---|---|---|
| **SYLLABUS: Warehousing functions – Types, safety measures and compliance – Stores management, stores systems and procedures, incoming materials control, stores accounting and stock verification – Obsolete, surplus and scrap value analysis – Material handling – Transportation and traffic management – Operational efficiency – Productivity cost effectiveness – Performance measurement.** | | | |
| **PART- A** | | | |
| **S.NO** | **QUESTIONS** | **BT LEVEL** | **COMPETENCE** |
| **1.** | List the activities under stores layout and administration. | Level 1 | Remembering |
| **2.** | What is a warehouse? | Level 2 | Understanding |
| **3.** | What are material receipts? | Level 1 | Remembering |
| **4.** | List the activities under material inspection. | Level 1 | Remembering |
| **5.** | What is material requisition? | Level 1 | Remembering |
| **6.** | Why is inspection important? | Level 2 | Understanding |
| **7.** | What are statutory compliances? | Level 1 | Remembering |
| **8.** | What is the basic purpose of stores accounting? | Level 2 | Understanding |
| **9.** | Distinguish between FIFO and LIFO | Level 1 | Remembering |
| **10.** | Define Stock Verification. | Level 1 | Remembering |
| **11.** | Define surplus. | Level 1 | Remembering |
| **12.** | What is obsolete? | Level 2 | Understanding |
| **13.** | What is scrap? | Level 1 | Remembering |
| **14.** | List at least four material handling devices. | Level 2 | Understanding |
| **15.** | What is a freight elevator? | Level 1 | Remembering |
| **16.** | What is performance management? | Level 1 | Remembering |
| **17.** | List the reasons for measuring performance. | Level 2 | Understanding |
| **18.** | What is non-moving inventory? | Level 2 | Understanding |
| **19.** | What is value analysis? | Level 1 | Remembering |
| **20.** | List the types of value. | Level 2 | Understanding |
| **21.** | What is traffic management? | Level 2 | Understanding |
| **22.** | List the terms used in imports. | Level 2 | Understanding |
| **23.** | What is Material handling Labor ratio? | Level 1 | Remembering |
| **24.** | What is Direct Labor handling Loss ratio? | Level 1 | Remembering |

| PART- B | | | |
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| **S.NO** | **QUESTIONS** | **BT LEVEL** | **COMPETENCE** |
| **1.** | Discus the factors affecting warehouse location in detail. | Level 3 | Applying |
| **2.** | Explain the components of logistics system. | Level 4 | Analyzing |
| **3.** | Illustrate the factors affecting the total cost of transportation. | Level 3 | Applying |
| **4.** | Describe the stores accounting and stock verification process. | Level 4 | Analyzing |
| **5.** | Explain the fixed and the floating systems of stock location. | Level 3 | Applying |
| **6.** | Explain distribution requirement planning (DRP)? | Level 4 | Analyzing |
| **7.** | Explain the necessity to have a standardized stores management procedure. | Level 3 | Applying |
| **8.** | Explain the principles of effective material handling. | Level 4 | Analyzing |
| **9.** | Write a short note on the following:<br>(i) Traffic Management<br>(ii) Productivity<br>(iii) Cost effectiveness<br>(iv) Warehouse Management | Level 3 | Applying |
| **10.** | Describe the categorization of Obsolete and obsolescence, with justification. | Level 3 | Applying |
| **11.** | Explain how to control the scrap and measures to control of obsolescence. | Level 4 | Analyzing |
| **12.** | Describe the factors influencing the Material Handling and the methods to reduce the cost. | Level 3 | Applying |
| **13.** | Elucidate the Operational Efficiency in Warehousing. | Level 4 | Analyzing |
| **14.** | Explain various methods to Improve Warehouse Efficiency & throughput. | Level 3 | Applying |
| **15.** | Explain the Warehouse Strategy Ideas for Improved Warehouse Operations towards cost effectiveness. | Level 4 | Analyzing |
| **16.** | Narrate the benefits of WMS. | Level 3 | Applying |
| **17.** | Elaborate the Key Performance Indicators (KPI's) that are most useful for WMS. | Level 4 | Analyzing |