Q.1. What is material handling? List and briefly explain any five material handling equipment.

(3+7=10)

Q.2. Effective operational layout can help in better selection of material handling equipment. Comment.

OR

An auto industry purchases spark plugs @Rs.25/- per piece. The annual consumption of spark plug is 18000 (in no.). If the ordering cost is Rs.250/- per order and carrying cost is 25% per annum, what would be the Economic Order Quantity?

(10)

Q.3. Define method study. What are the factors that forces an organisation to conduct method study?

OR

Write an essay on recycling and disposal of water.

(2+8=10)

Q.4. Write short notes on any four:

(a) Predictive maintenance       (b) Integrated inventory management
(c) Total quality management     (d) Objectives of material handling
(e) Factors affecting quality standards in a manufacturing unit

(4x5=20)

Q.5. What is work measurement? Explain any five techniques that can be used for work measurement.

(2+8=10)

Q.6. Discuss the importance of inventory management in relation to ensuring smooth operations. Also list any five inventory management techniques.

(6+4=10)
Q.7. What is maintenance management? Explain the different types of maintenance with suitable examples.

(2+8=10)

OR

ABC company has kept records of breakdown of its machines for a 300-day work year, as shown below:

<table>
<thead>
<tr>
<th>No. of breakdown</th>
<th>Frequency in days</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>40</td>
</tr>
<tr>
<td>1</td>
<td>150</td>
</tr>
<tr>
<td>2</td>
<td>70</td>
</tr>
<tr>
<td>3</td>
<td>30</td>
</tr>
<tr>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>300</td>
</tr>
</tbody>
</table>

The firm estimates that each breakdown costs Rs.650/- and is considering adopting a preventive maintenance program which would cost Rs.200/- per day and limit the number of breakdown to an average of one per day. What is the expected annual savings from preventive maintenance program?

(10)

Q.8. Define the following:
(a) Economic Order Quantity
(b) Carrying cost
(c) Routing
(d) Scheduling
(e) Logistics management

(5x2=10)

Q.9. Match the following:
(a) Economic Order Quantity
(b) Waste disposal
(c) Fork lift truck
(d) Time study
(e) Work measurement
(f) Motion study
(g) Kanban
(h) Materials management
(i) Codification
(j) ABC analysis

(i) Incineration
(ii) Carrying cost
(iii) Stop watch
(iv) Load
(v) Analytical
(vi) Cards and containers
(vii) Path
(viii) Identification
(ix) Optimum inventory
(x) Inventory management

(10x1=10)