International Islamic University Chittagong
Program: BBA
Mid-term Examination
Spring 2023
Course Code: **SCM 4803**
Course Title: **Production and Inventory Management**

Time: 1.5 hrs. **Full Marks: 30**

[Answer all of the following questions. All questions are of equal marks.Figure in the right hand side margin indicates marks. All parts of the same question must be answered serially]

<table>
<tr><th colspan="2">Sl no.</th><th>Questions</th><th>Marks</th><th>H / L</th></tr>
<tr><td>1.</td><td>a.</td><td>Define Supply Chain Management with Example. Identify the Purpose and nature of Supply Chain Management.</td><td>3</td><td>L</td></tr>
<tr><td></td><td>b.</td><td>Differentiate between supply chain and value chain with example.</td><td>3</td><td>H</td></tr>
<tr><td></td><td>c.</td><td>Let you are a supply chain manager of a bottled drinking water brand of Bangladesh. Identify and explain the logistical drivers & cross functional drivers for your firm.</td><td>4</td><td>H</td></tr>
<tr><td>2.</td><td>a.</td><td>What is Inventory Management? Analyze the function and purpose of the following kinds of inventories: i. Fluctuation inventory ii. Lot size inventory</td><td>3</td><td>L</td></tr>
<tr><td></td><td>b.</td><td>Compare VED classification and FSN classification of inventory with relevant examples.</td><td>3</td><td>H</td></tr>
<tr><td></td><td>c.</td><td>What are the five costs associated with inventories? Name and describe the categories of inventory-carrying costs.</td><td>4</td><td>L</td></tr>
<tr><td>3.</td><td></td><td>Over the past year, a company has sold the following ten items. The following table shows the annual sales in units and the cost of each item.
i. Calculate the annual dollar usage of each item.
ii. List the items according to their total annual dollar usage.
iii. Calculate the cumulative annual dollar usage and the cumulative percentage of items.
iv. Group the items into A, B, and C groups based on percentage of annual dollar usage.
<table>
<tr><th>Part Number</th><th>Annual Unit Usage</th><th>Unit Cost $</th><th>Annual $ Usage</th></tr>
<tr><td>1</td><td>21,000</td><td>1</td><td></td></tr>
<tr><td>2</td><td>5000</td><td>40</td><td></td></tr>
<tr><td>3</td><td>1600</td><td>3</td><td></td></tr>
<tr><td>4</td><td>12,000</td><td>1</td><td></td></tr>
<tr><td>5</td><td>1000</td><td>100</td><td></td></tr>
<tr><td>6</td><td>50</td><td>50</td><td></td></tr>
<tr><td>7</td><td>800</td><td>2</td><td></td></tr>
<tr><td>8</td><td>10,000</td><td>3</td><td></td></tr>
<tr><td>9</td><td>4000</td><td>1</td><td></td></tr>
<tr><td>10</td><td>5000</td><td>1</td><td></td></tr>
</table></td><td>10</td><td>H</td></tr>
</table>

OR

3.	a)	An importer operates a small warehouse that has the following annual costs. Wages for purchasing are $45,000, purchasing expenses are $30,000, customs and brokerage costs are $25 per order, the cost of financing the inventory is 8%, storage costs are 6%, and the risk costs are 10%. The average inventory is $250,000, and 5000 orders are placed in a year. What are the annual ordering and carrying costs?	4	H
	b)	A company manufactures and sells a seasonal product. Based on the sales forecast that follows,	6	H

	Quarter-1	Quarter-1	Quarter-1	Quarter-1	Total $
Forecast demand	5000	8000	8000	9000	
Production					
Ending inventory					
Average inventory					
Inventory cost					

Assume that the average quarterly inventory is the average of the starting and ending inventory for the quarter. Opening and ending inventories are zero.

Requirements:

i. Calculate a level production plan

ii. Calculate quarterly ending inventories

iii. Calculate average quarterly inventories.

iv. If inventory carrying costs are $7 per unit per quarter, what is the annual cost of carrying this anticipation inventory?