Graphic Era HILL UNIVERSITY
Established by an Act of the State Legislature of Uttarakhand (Adhiniyam Sankhya 12 of 2011)
University under section 2(f) of UGC Act, 1956

End Term (Even) Semester Examination May-June 2025

Roll no.....

Name of the Program and semester: **MBA Semester 2**
Name of the Course: **Operations and Supply Chain Management**
Course Code: **MBA 203**

Time: 3 hours

Maximum Marks: 100

Note:

(i) This question paper contains two Sections-Section A and B
(ii) Both Sections are compulsory
(iii) Answer any two sub questions from a, b & c in each main question of Section A. Each sub question carries 10 marks.
(iv) Section B, consisting of a case study, is compulsory. It is of 20 Marks.

Section A

Q1. (2X10=20 Marks)

a. Explain the concept of Supply Chain Management (SCM). Discuss the role of integration and coordination within a supply chain network. [CO 1,2]

b. Analyze the key challenges faced in implementing sustainable supply chain practices in a global supply chain. How do different stakeholders (e.g., suppliers, retailers, consumers) influence the success of green supply chain initiatives? [CO 5]

c. Demand data for a specific product is as given in the table. Calculate weighted moving average with weights of 0.25, 0.25 and 0.50 where the last weight is for the most recent data. Additionally, determine the forecasts for the next period using exponential smoothing method. Use $\alpha = 0.3$ and the forecast for February as 38 units. Determine the MAD and comment on which of the two forecasts is better. [CO3,4]

Month	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Demand	37	40	41	37	45	50	43	47	56	52	55	54

Q2. (2X10=20 Marks)

a. Analyze the impact of the Bullwhip effect on a company's supply chain operations. How would variations in demand at the consumer level cause inefficiencies at the supplier level? Provide specific examples from real-life supply chains to support your answer. [CO5]

b. Write short notes on: [CO1]

i) reverse logistics
ii) third party logistics
iii) functions of logistics

c. What is scheduling? Seven jobs are to be scheduled in two machines in a manufacturing shop. All the seven undergo processing on both machines as given in following table. Identify the best sequence using Johnson's rule. Also calculate idle time of the machines and waiting time for jobs (if any). [CO1,3,4]

Job No	**A**	**B**	**C**	**D**	**E**	**F**	**G**
Machine 1	9	5	8	3	4	1	7
Machine 2	2	4	10	5	6	11	6

Q3. (2X10=20 Marks)

a. Explain the concept of aggregate planning in operations management. What are the different strategies used in aggregate planning? [CO1,2]

b. Evaluate the significance of warehouse facility location and network design decisions in optimizing supply chain performance. How do these decisions affect transportation costs, inventory management, and overall customer satisfaction?

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c. A manufacturing company has the following data on demand and costs for a particular part. Annual demand is 9000 units, cost price is Rs 2 per unit, ordering costs are Rs 40 per order, and inventory carrying charge is 9% of the value of inventory. Further lead time is uniform and equals 8 working days, the total number of working days in a year are 300. Determine the EOQ and the reorder level. What will be the total cost of inventory? CO5

Q4. (2X10=20 Marks)

a. How do layout decisions and capacity planning influence the efficiency of an organization's operations? Discuss with examples. [CO 2]

b. Analyze how technology such as RFID and Automated Storage & Retrieval Systems (AS/RS) can streamline warehouse operations. Compare the benefits of implementing these technologies with the potential costs involved in their adoption. [CO 5]

c. Evaluate the potential impact of the Multimodal Transportation of Goods Act 1993 on global supply chain management. How does this legislation address the challenges faced by companies using multiple modes of transportation, and what implications does it have for cost and compliance? CO4

Section B

Q5. Case Study [CO 5. (20 Marks)

Boseman Oil and Petroleum (BOP) is one of many oil companies operating offshore petroleum platforms in the Gulf of Mexico. The company identifies offshore sites for exploration drilling and constructs drilling platforms. Once exploration activities are successful, the platforms are converted to a production platform to extract crude oil and natural gas. BOP operates multiple platforms and an onshore facility that serves as the primary interface between the platforms. Boats with specialized crews provide logistics services between the platforms and the onshore facility. The boats deliver fuel, water, equipment, and other needed supplies multiple times a day to the platforms. Accurate and timely delivery of materials is absolutely necessary for successful platform operations.

BOP had traditionally focused on exploration and production activities, paying little attention to operating costs. However, operating costs had been increasing rapidly. A particularly significant cost was the operating of boats and crews needed to provide logistics services between platforms and the onshore facility. The boats are highly specialized, with built-in storage tanks and unique cargo space designs. The boat crews are specially trained, and operating the boats and crews is highly expensive. Although BOP is dependent on the boat deliveries, it does not use the boats at full capacity and they are often idle.

Jeff Kessinger, director of offshore operations for BOP, is now faced with the decision of how to reduce operating costs. One option is to outsource the logistics service to a company specializing in providing offshore logistics services. Logistics-Offshore Inc. is such a company, owning and maintaining its own fleet of boats and crews. Logistics-Offshore could be hired to perform this function. BOP could sell its boats and focus on oil exploration. Jeff is aware that outsourcing is an important strategic decision and there is much to consider. He is not sure where to begin.

Questions

1. Analyze the potential strategic advantages and disadvantages for BOP in outsourcing the boat logistics service to Logistics-Offshore. Explain the strategic implications of each.
2. Identify the type of information Jeff Kessinger needs to gather and evaluate in order to make his decision.