INDIRA UNIVERSITY, PUNE

SCHOOL OF BUSINESS- MBA

Term End Examination (2025 Pattern) April- May – 2026- Semester – II

Course Name: Operations Planning and Control **Max. Marks: 25**
Course Code: 25MBA284 **Time: 1:30 Hours**

Instructions

1. **All questions are compulsory. Kindly read the detailed instructions for each question.**
2. **Question 1, 2 and 3 carry 5 marks each and Question 4 Carry 10 marks each.**

Q1. **Attempt any 1 out of 2 Questions: [5 Marks]** CO3

a) The manager of the Paradise Carpet outlet needs to be able to forecast accurately the demand for Soft Shag carpet (its biggest seller). If the manager does not order enough carpet from the carpet mill, customers will buy their carpets from one of the outlets many competitors. The manager has collected the following demand data for the past eight months.

Month	Demand for Soft Shag Carpet (1000 yd)
1	5
2	10
3	6
4	8
5	14
6	10
7	9
8	12

a) Compute a three-month moving average forecast for months 4 through 9.
b) Compute a weighted three-month moving average forecast for months 4 through 9. Assign weights of 0.55 0.33, and 0.12 to the months in sequence, starting with the most recent month.
c) Compare the two forecasts using MAD. Which forecast appears to be more accurate?

b) The Oceanside Hotel is adjacent to City Coliseum, a 24,000-seat arena that is home to the city's professional basketball and ice hockey teams and that hosts a variety of concerts, trade shows, and conventions throughout the
year. The hotel has experienced the following occupancy rates for the nine years since the coliseum opened:

Year	Occupancy Rate (%)
1	75
2	70
3	72
4	77
5	83
6	81
7	86
8	91
9	87

Compute an exponential smoothing forecast with Alpha = 0.20, and Alpha =0.30.

Q2. **Attempt any 1 out of 2 Questions:** **[5 Marks]** CO4

a)

Rowley Apparel manufactures swimwear with seasonal demand.
Each worker produces **1000 units per month**.

- Regular production cost = **₹10 per unit**
- Overtime cost = **₹15 per unit**
- Subcontracting cost = **₹20 per unit**
- Beginning inventory = **0 units**

Month	Demand
April	2000
May	3000
June	4000
July	5000

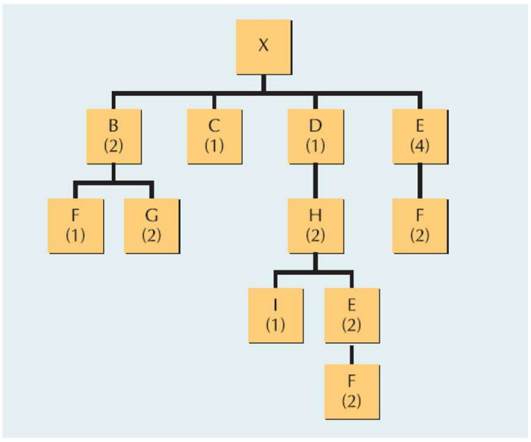
Tasks:

1. Develop a **Level Production Plan** assuming:
    - Constant production equal to average demand
    - Use **overtime/subcontracting if needed**
2. Calculate:
    - Monthly production
    - Overtime / subcontracting required
    - **Total cost**

b)

SweetDelight Confectionery produces a range of chocolate products. Demand is seasonal, with higher sales during festive periods and lower demand during off seasons.
Given the following costs and quarterly demand forecasts, determine whether
(a) Level Production

Quarter	Sales Forecast (lbs)
Q1	60,000
Q2	40,000
Q3	100,000
Q4	130,000

	Given Data: • Hiring Cost = $120 per worker • Firing Cost = $400 per worker • Inventory Carrying Cost = $0.75 per pound per quarter • Regular Production Cost per Pound = $2.50 • Production per Employee = 2000 pounds per quarter • Beginning Workforce = 30 workers Tasks: Develop a Level Production Plan and calculate total cost.	
Q3. a)	**Attempt any 1 out of 2 Questions:** **[5 Marks]** From the product structure diagram for item X shown at the top of the next column, Determine the **total requirement of all lower-level items (B through I)**  	CO5
b)	What are the capabilities of Supply Chain Management software? How do ERP and CRM relate? Explain how ERP and CRM could be applied to Hotel Renovations	
Q4. a)	**Attempt any 1 out of 2 Questions:** **[10 Marks]** Develop a job scheduling strategy to minimize completion time using Johnson's Rule. Johnson's Fine Restorations has received a rush order to refinish five carousel animals—an alligator, a bear, a cat, a deer, and an elephant. The restoration involves two major processes: sanding and painting. Mr. Johnson takes care of the sanding; his son does the painting. The time required for each refinishing job differs by the state of disrepair and degree of detail of each animal. **Tasks:** 1. **Sequence the jobs using the following rules:** **(a)** Earliest Due Date (DDATE) rule. **(b)** Shortest Processing Time (SPT) rule.	CO6

2. For each rule, **calculate the completion time** and **tardiness** for each job.
3. **Analyse the results** and **recommend** which sequencing rule Joe should use to minimize tardiness and optimize job completion.

Job	Process 1	Process 2
A	6	8
B	11	6
C	7	3
D	9	7
E	5	10

b) Develop and complete an MRP matrix in a given scenario.

Complete the following **Material Requirements Planning (MRP)** matrix for **item A**. Based on the given **gross requirements**, **scheduled receipts**, **projected on hand**, and **lead time**, determine the following:

1. **Net Requirements** for each period.
2. **Planned Order Receipts** based on the net requirements and lot size.
3. **Planned Order Releases** based on the lead time and the planned order receipts.

Item: A	LLC: 1	Period							
Lot Size: Mult 50	LT: 2	1	2	3	4	5	6	7	8
Gross Requirements		10	15	25	75	60	85	45	60
Scheduled Receipts									
Projected on Hand	50								
Net Requirements									
Planned Order Receipts									
Planned Order Releases									

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