

**JAIPURIA INSTITUTE OF MANAGEMENT, NOIDA**  
**PGDM / PGDM (M) / PGDM (SM)**  
**SECOND TRIMESTER (Batch 2023-25)**  
**END TERM EXAMINATIONS, JANUARY 2024**  
**REAPPEAR**

Course Name	<b>OPERATIONS MANAGEMENT</b>	Course Code	<b>20502</b>
Max. Time	<b>2 hours</b>	Max. Marks	<b>40 MM</b>

**INSTRUCTIONS:**

- All questions are compulsory.
- This is a closed book examination.
- Only calculators allowed. Use of mobile and any other electronic device prohibited.
- Answers should be rich in content, pointwise. Avoid unnecessarily long answers.

**Q1**

1.1 To be competitive, "Apex Café" a fast food chain began to expand its menu to include a wider range of foods. Although contributing to competitiveness, this had added to the complexity of operations including inventory management at Apex Café. Following is a list of items at a distribution center of "Apex Café. Operations Manager at Apex Café wishes to have a better monitoring of inventory using A-B-C classification scheme. Develop an A-B-C classification scheme for the following items:

Item	Unit Cost	Annual Volume (00)
1	\$100	25
2	\$80	30
3	\$15	60
4	\$50	10
5	\$11	70
6	\$60	85
7	\$10	60

1.2 Sugar is a key ingredient in production of various products at central production plant of Apex Café. It follows a continuous review fixed order quantity inventory management system for sugar. It buys sugar in 50 kg bags. Apex Café uses 40 bags of sugar each day. The plant operates for 260 days in a year. Storage and handling costs are \$30 a year per bag. It costs approximately \$60 to order and receive a shipment of sugar. Determine the optimal order frequency and average cycle inventory of sugar.

(Marks: 4+4)

**Q2**

2.1 "Kids World", a toy manufacturer has an assembly line to manufacture one of its most popular truck model i.e. Buster Truck. The desired output of Buster Truck from the assembly line is 360 units. The assembly line operates for 450 minutes per day. The following table gives information about the task times and precedence relationships.

Task	Task time (seconds)	Immediate Predecessor
A	30	-
B	35	A
C	30	A
D	35	B
E	15	C
F	65	C
G	40	E,F
H	25	D,G

Balance the assembly line to achieve the desired production rate.

2.2 The actual demand of Buster Truck for the last 5 weeks is given below.

Week	Actual Demand (00)
1	20
2	22
3	18
4	21
5	22

Develop an Exponential smoothing forecast for the next week (with alpha = 0.30; assume forecast of week 2 = 20).

(Marks: 4+4)

**Q3**

3.1 An apparel retail chain is planning to open a new store in the city. It has identified 3 possible sites for the upcoming store i.e. A, B & C. The Manager and team have decided that six factors would be taken into account while deciding the store location. The team has allocated weights to each factor and also factor rating scores for the three locations (Scores range from 1 – 100 -best).

Factor	Weight	Location Score		
		A	B	C
Convenience	.15	80	70	60
Parking	.20	72	76	92
Display area	.18	88	90	90
Shopper traffic	.27	94	86	80
Operating costs	.10	98	90	82
Neighborhood	.10	96	85	75
	1.00			

Recommend the best location for the upcoming retail store based on Factor Rating Method.

3.2 Operations Manager at an automobile manufacturer is concerned about the increasing incidences of late deliveries of navigation component from its supplier. Construct a cause and effect diagram to analyze possible causes of late delivery of component ordered from the supplier.

(Marks: 4+4)

Q4

4.1 Discuss the key elements of TQM approach.

4.2 Discuss cost of poor quality and costs of good quality.

(Marks: 4+4)

Q5 Write short notes on any two:

1. Order Winners and Order Qualifiers
2. PDCA Cycle
3. Process Layouts

(Marks: 4+4)