KUMARAGURU
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MBA DEGREE EXAMINATIONS: JAN 2023

(Regulation 2021)

First Semester

MASTER OF BUSINESS ADMINISTRATION

P21MBC1109 : OPERATIONS MANAGEMENT

COURSE OUTCOMES

CO1: Explain the concepts and applications of operations management in business organizations for achieving a competitive advantage

CO2: Propose suitable tools and techniques of operations management for productivity improvement

CO3: Display analytical thinking skills in the application of suitable tools governing quality for effective business decision making

Time: Two Hours   **Maximum Marks: 50**

PART A (1Q x 10 Marks = 10 Marks) Compulsory Case Only

1   CO3 [K$_4$]

In mid-2000, the Firestone Tire Company issued a recall of some of its tires-those mounted on Certain Sport-utility vehicles (SUVs) of the Ford Motor Company. This was done in response to reports that tire treads on some SUVs separated in use, causing accidents, some of which involved fatal injuries as vehicles rolled over. At first, Firestone denied there was a problem with its tires, but it issued the recall under pressure from consumer groups and various government agencies, all of the tires in question were produced at the same tire plant, and there were calls to shut down that facility. Fire stone suggested that Ford incorrectly matched the wrong tires with its SUVs. There was also the suggestion that the shock absorbers of the SUVs were rubbing against the tires, causing, or aggravating the problem.

 Both Ford and Firestone denied that this had been an ongoing problem. However, there was a public outcry when it was learned that Firestone had previously issued recalls of these tires in South America but Firestone informed officials in other Countries. Moreover, both companies had settled at least one lawsuit involving an accident caused by tread separation several years earlier. This case raises several issues, some related to possible causes and ethical issues.

Discuss each of those factors and their actual or potential relevance to what happened:

1. Product design

2. Quality Control
3. Ethics

PART B (5Q x 2 Marks = 10 Marks)

2	Outline the examples of strategic decisions	CO1	[K₂]
3	Why is demand forecasting needed?	CO1	[K₂]
4	How are aggregate plans prepared?	CO2	[K₂]
5	Identify the production system where Cellular Layout is suitable	CO2	[K₂]
6	List out the key elements of an effective safety program	CO3	[K₂]

Part – C (3Qx10 Marks =30 marks)

7 a) Identify today's factors affecting operations management for the Electric vehicles Manufacturing Industry   CO1 [K₃]

(OR)

7 b) Explain the steps to be followed in forecasting demand for a product of your choice   CO2 [K₃]

8 a) The company is currently planning production for weeks 10 through 16. Based on existing orders and demand forecasts, the master production schedule is as follows: Master Production Schedule: #442 Moped. Determine the MRP schedule required to support the master production schedule for the Model 442 moped in weeks 10-16.   CO2 [K₄]

Week	10	11	12	13	14	15	16
Quantity	0	1000	0	1300	800	1200	400

(OR)

8 b) Arizona Instruments produces barcode scanners for consumers and other manufacturers on a produce-to-stock basis. . The minimum lot size is 1,500 scanners, and the safety stock level is 400 scanners. There are currently 1,120 scanners in inventory. The estimates of demand for scanners in the next 6 weeks are shown below. As a production planner develop an MPS for scanners for the next 6 weeks   CO2 [K₄]

	WEEK					
	1	2	3	4	5	6
CUSTOMERS	500	1000	500	200	700	1000
BRANCH WAREHOUSES	200	300	400	500	300	200
MARKET RESEARCH	0	50	0	0	10	0
PRODUCTION RESEARCH	10	0	0	0	0	0

9 a) Identify the factors which influence plant location for Retail Layouts   CO3 [K₃]

(OR)

9   b)   Calculate the 3σ control limits for X-bar and R charts based on the first 12 samples reflectingthe process before any problems were denounced. Factor values from tables are $A_2 = 1.023$, $D_3 = 0$, $D_4 = 2.574$ CO3   [K4]

Sample	Screw 1	Screw 2	Screw 3	Mean (x-bar)	Range (R)
1	0.276	0.238	0.261	0.258	0.038
2	0.249	0.263	0.234	0.249	0.030
3	0.264	0.255	0.258	0.259	0.009
4	0.255	0.279	0.269	0.268	0.024
5	0.262	0.273	0.234	0.256	0.039
6	0.268	0.267	0.270	0.268	0.003
7	0.266	0.244	0.270	0.260	0.026
8	0.232	0.261	0.278	0.257	0.046
9	0.242	0.277	0.253	0.257	0.035
10	0.246	0.253	0.236	0.245	0.017
11	0.279	0.230	0.235	0.248	0.049
12	0.238	0.243	0.237	0.239	0.005

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