



DELHI SCHOOL OF BUSINESS

By Vivekananda Institute of Professional Studies - TC

Delhi School of Business
PGDM & PGDM (FINTECH) Program
END-TERM EXAMINATION, October 2023
TERM – I (Batch: 2023-25)

Course Name	Operations Management	Course Code	
Duration	2.5 Hours	Max. Marks	40

Instructions:

1. All questions are compulsory.
2. Answers should be to the point.
3. Rough work should be done near the question and then crossed.

Q.1

(06 Marks) CO__2__

Given the following tasks and requirements for an assembly line, what is the maximum daily output and efficiency?

Task	Task Time (in minutes)	Required Predecessors
A	5	F
B	2	F
C	3	E, G
D	7	A, B
E	8	D, H
F	4	-
G	6	D
H	3	D



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Q.2

(06 Marks) CO_4

Bombay Builders (BB) buy designer 1/2 inch faucets from Keki Valvewala & Sons (Keki). The price schedule quoted by Keki is:

Quantity	Price per Unit, Rs.
1 to 99	50.00
100 to 499	45.00
500 and above	40.00

BB estimate their annual requirement of these faucets as 2000. The ordering costs are estimated to be Rs. 25 per order and the inventory carrying costs are charged at 30 per cent of unit cost. What is the optimal quantity that BB should order from Keki?

Q.3

(06 Marks) CO_4

Product A consists of two units of subassembly B, three units of C, and one unit of D. B is composed of four units E, and three units of F. C is made of two units of H and three units of D. H is made of five units of E and two units of G. The lead period for A, D and F is 2 weeks each, lead period for B and G is three weeks and one week for all others.

- Construct a simple product structure tree.
- Provide low-level coding in the above tree.
- Construct a time phased diagram.
- To produce 100 units of A, prepare a Materials Requirement Planning Schedule.

Q.4

(06 Marks) CO_1

Bravo Limited is evaluating four locations for a new plant and has weighted the relevant scores as given below. Scores have been assigned with higher values indicative of preferred conditions. Using these scores, develop a qualitative factor comparison for the four locations.

Relevant Factors	Assigned Weight	Scores of location			
		A	B	C	D
Production Cost	3.5	5	4	6	3
RM Supply	2.5	7	8	8	6
Labour Availability	2.0	6	7	6	5
Cost of Living	0.5	8	7	4	8
Environment	0.5	5	6	7	9
Markets	1.0	7	9	8	5

Handwritten notes and diagrams:

- Period 0 1 2 3
- Gross Req
- Sche Receipt
- Project on hand
- Net Req
- Material Req

Handwritten notes:

- A - Assmt
- 27
- 100
- 3.5



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Q.5

(06 Marks) CO__2__

Historical demand for a medicine in the medical store located in a leading hospital is as given in the table below. Demand is given in cartons containing 144 strips of 10 tablets each.

Month	Demand
January	12
February	11
March	15
April	12
May	16
June	15

- a) Using the weighted moving average with weights of 0.60, 0.30 and 0.10, find the July forecast.
- b) Using a simple three-month moving average, find the July forecast.
- c) Using single exponential smoothing with $\alpha = 0.2$ and a June forecast = 13, find the July forecast. Make whatever assumptions you wish.

$\alpha A + (1-\alpha)B$

(10 Marks) CO__1__

Q.6

Planning Market Research

An established company has decided to add a new product to its line. It will buy the product from a manufacturing concern, package it, and sell it to a number of distributors selected on a geographical basis. Market research has been done which has indicated the volume expected and size of sales force required. The following steps and are to be planned.

Organise the sales office – hire the sales manager	5 weeks
Hire salesmen – the sales manager will recruit and hire the salesmen needed	4 weeks
Train salesmen – train the salesmen hired to sell the product to the distributors	7 weeks
Select advertising agency – the sales manager will select the agency best suited to promote the new product	2 weeks
Plan advertising campaign – the sales office and the advertising agency will jointly plan the advertising campaign to introduce the product to the public	4 weeks
Conduct advertising campaign – the advertising agency will conduct a 'watch for' campaign for potential customers to end at the time distributors receive their initial stocks	10 weeks
Design package – design the package most likely to 'sell', work to be done within the company on the basis of results of market research	4 weeks
Set up packaging facilities- prepare to package the products when they are received	



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from manufacturer	12 weeks
Package initial stocks – package stock received from the manufacturer	8 weeks
Order stock from manufacturer – order the stock needed from the manufacturer on the basis of the volume indicated by the market research. The time given includes the lead time for delivery	13 weeks
Select distributors – the sales manager will select the distributors whom the salesmen will contact to make sales	9 weeks
Sell to the distributors – take order for the new product from the distributors with delivery promised for introduction date. If orders exceed stock, assign stock on a quota basis	6 weeks
Ship stock to distributors – ship the packaged stock to the distributors as per their order or quota	6 weeks

SL

40

1.21

Questions:

- what is the earliest number of the weeks in which we can introduce the product?
- If we hired train salesmen and eliminate the training period of 7 weeks, can our product be introduced 7 weeks earlier?
- How long can we delay in selecting our advertising agency?
- What is the effect of a delay of (i) 1 week; (ii) 2 Weeks; (iii) 3 Weeks, in organizing the sales office?
- If the whole product launch operation is to be completed as rapidly as possible, what activities must have been completed by the end of week 16?
- What advantage, if any, would accrue if the selection of the advertising agency took place at the same time as the organizing of the sales office?