IIHMR UNIVERSITY

School of Pharmaceutical Management

MBA Pharmaceutical Management

Batch-08th (2016-2018) Second Year

Supply Chain Management

Term Examination

Time - 3 Hour **MM-70**

The question paper contains **3** printed pages.

Instructions

The question paper contains 8 questions out of which the candidate is required to **attempt any 5 questions**. All questions carry equal marks.

Q.1 Explain the model of Pharmaceutical Supply Chain Management in India. Also enumerate the opportunities and challenges in Pharmaceutical Supply Chain Management. (14)

Q.2 (a) What do you understand by drug quantification? Explain the Consumption methods of quantification of drugs. (5)

(b) The stock card indicating the consumption of Metformin 500mg in a year is shown below:

2014		IN	OUT	STOCK
1 Jan	OPENING STOCK			1,000
5 Jan	From central store	4,000		5,000
18 Jan	To hospital pharmacy		2,000	3,000
25 Feb	To hospital pharmacy		1,000	2,000
5 Mar	From central store	2,000		4,000
5 Mar	Contaminated		2,000	2,000
25 Mar	To hospital pharmacy		1,000	1,000
15 Apr	To hospital pharmacy		1,000	0
8 Jun	From central store	3,000		3,000
9 Jun	To hospital pharmacy		2,000	1,000
15 Jun	From central store	4,000		5,000
20 Jun	To hospital pharmacy		2,000	3,000
30 Aug	To hospital pharmacy		2,000	1,000
10 Oct	Unaccounted for		1,000	0
10 Nov	From central store	4,000		4,000
11 Nov	To hospital pharmacy		2,000	2,000
15 Dec	To hospital pharmacy		1,000	1,000
31 Dec	Clsoing stock			1,000

a) What is the recorded consumption for the year? (3)

b) What is the adjusted consumption after allowing for avoidable wastage and losses? (3)

c) What is the effective period during which the drug had been in stock? What is the consumption adjusted for stock-outs? (3)

Q.3 Three warehouses W_1, W_2, W_3 are used to stock similar medicines. Orders are received at these warehouses from four hospitals at four different locations H_1, H_2, H_3 and H_4:

Warehouse	Trucks loads on hand
W_1	7
W_2	9
W_3	18

Hospitals	Requirements in Truck loads (monthly)
H_1	5
H_2	8
H_3	7
H_4	14

The distance chart, in terms of shipping distances in km, from warehouse to different locations is given below:

TO / FROM	H_1	H_2	H_3	H_4
W_1	19	30	50	10
W_2	70	30	40	60
W_3	40	8	70	20

The average cost of shipping each truck is Rs.10/km.
As the Supply Chain Manager, find out which warehouse should supply which hospital during a month, so that the cost of the shipping is minimized? Also find the minimum total cost. (14)

Q.4 Explain the key components of medical stores management system with suitable examples and illustrations. (14)

Q.5 A pharmaceutical manufacturer supplies five independent Depot (V, W, X, Y, Z) from four plants (A,B,C,D) at weekly intervals. In the next week the planned production of a given drug is as follows:

Plants	A	B	C	D
Planned Production (in million units)	25	250	170	115

The demand from the depots for the same period is:

Depot	V	W	X	Y	Z
Demand (in million units)	75	200	150	65	70

The transport costs (thousand of Rs. per million units), payable by the manufacturer, are shown below:

DEPOT

PLANT	V	W	X	Y	Z
A	9.3	7.6	9.0	9.8	10.0
B	9.2	7.2	9.0	9.5	9.7
C	8.9	7.3	8.7	9.3	9.9
D	9.0	7.5	8.5	10.0	7.4

Find the minimum cost transport plan for the pharmaceutical manufacturer. (14)

Q.6 (a) What do you understand by inventory management in drug supply system? Explain in brief the technique of ABC and VED classification in improving cost effectiveness in the Supply Chain Management. (6)

(b) A portion of a hospital pharmacy formulary contains the 8 medications listed below.

Item No.	Description	Unit Price	Annual Consumption
1	Albuterol 0.083% 3ml	200	3,000
2	Alprazolam 1mg	2	60,000
3	Sucralfate 1Gm	5000	20
4	Captopril 50mg	12.5	200
5	Cerumenex	9	350
6	Theophylline	25	6,000
7	Lanoxin 0.25mg 2ml	1000	40
8	Difl unisal 250mg	70	300

Draw an ABC analysis graph after classifying A, B & C class items. (8)

Q.7 (a) Explain the EOQ model in supply chain management. Also explain the EOQ under quantity discount with one price break. (6)

(b) A pharmaceutical manufacturer situated at Sitapura, Jaipur, is at an advanced stage in the development of a new drug, the production of which will create a need for a chemical not previously purchased by the company. Two potential suppliers have been identified, one in Germany and another in France. The German company quoted a price of Rs. 2,000 per kg for quantities less than 500 kg and Rs. 1,800 per kg for orders of 500 kg or more. The French company has quoted a price of Rs. 1900 per kg for any order. The management of the company estimates a demand of 500 kg per year and the cost of holding an item in stock for a year is assessed as 20 % of its purchase cost. The cost of placing an order has been assessed as being Rs. 30,000 for either supplier. Advise the Supply Chain Manager of the company on the supplier to which the order has to be placed, and also in what quantity. (8)

Q.8 Write short notes on any **two (2)** of the following (7+7)

(i) Product and Supplier Prequalification.

(ii) Procurement & Distribution of Pharmaceuticals.

(iii) Procurement principles.

***