IIHMR UNIVERSITY

School of Pharmaceutical Management

Master of Business Administration
Pharmaceutical Management
Batch-8th (2016-2018) Second Year
Pharmaceutical Production Management

Term Examination

Time - 3 Hour **MM-70**

Note: The Question paper has been divided in 2 sections, Section A & B. Each Section is of 35 marks.

The question paper contains 3 printed page.

(Section A)-35 Marks

Attempt all questions: Each question in this section carries equal (11.66) marks.

Q. 1. Sohan has to consider five towns which need to supply to a plant would be supplied with tonnages of mineral ores as given below:

Location	Load	Coordinates (X, Y)
Location A	2200	(50, 250)
Location B	3600	(125,600)
Location C	3300	(455, 650)
Location D	1400	(600, 360)
Location E	2500	(420, 130)

Locate the central location (P) such that the cost of shipment from such central location gives the minimum cost?

Discuss the various factors influencing plant layout and also suggest best layout for Pharmaceutical production?

Q. 2. Define productivity? Distinguish between Production and Productivity? Elaborate the various methods of capital productivity?

Q. 3. Write short notes **(any 3)**

a. QbD
b. Automation
c. Production problem
d. ERP

(Section B)-35 Marks

Attempt any 3 questions: Each question in this section carries equal (11.66) marks.

Q1. A pharmaceutical manufacturer is considering a new computerized inventory management system. The following information has been gathered regarding the installation and implementation of the system;

	Activity	Description	Immediate Predecessors	Duration (days)
Start	A	Select the computer model	-	6
	B	Design input / output system	A	12
	C	Design monitoring system	A	10

	D	Assemble the computer hardware	B	20
	E	Develop the main programmes	B	11
	F	Develop input/output routines	C	8
	G	Create Database	E	6
	H	Install the system	D,F	3
Finish	I	Test and implement	G,H	6

From the above information you are required to draw the Activity on arrow network for the project. Determine the critical path and compute the minimum time for the implementation of the computerized production and inventory management system. Also find the total float or slack of non-critical activities.

Q2. What do your understand by Production Planning & Control?

A pharmaceutical company uses MRP for its production materials planning. The table below provides the information about a particular drug. The demand for this drug is somewhat uncertain and in order to take care of a sudden spurt in the demand, a safety stock of 50 kg of the chemical (raw material) is recommended. Below is the MRP sheet for the raw material that has to be procured from a foreign supplier.

	Week								
LT= 3 weeks Order size = 250	1	2	3	4	5	6	7	8	9
Requirements	40	100	70	150	20	20	50	100	
Schedule Receipts		250							
On hand (at the end of the week) 150									
Planned Order Release									

During which weeks should the receipts be planned? When should the orders be placed? What is the expected on hand position at the end of week 9? Draw the MRP sheet indicating your answer.

Q3. A pharmaceutical company has decided to install a new computerized order processing system. In the past orders for the drugs the company produces were processed manually, which contributed to delays in delivering orders and resulted into lost sales. The company wants to know how long it will take to install the new system.

The activities of the installation of new order processing system, their precedence, and their three time estimates (in days) for each activity are shown below:

Activity	Description	Immediate predecessor	Time estimates		
			a	m	b
A	New computer equipment installed	-	6	8	10
B	Computerized order processing system is developed	-	3	6	9
C	People are recruited to operate the system	-	1	3	5
D	Job training of the persons hired for the job	C	3	4	5
E	Company orientation of the other personnel in the company such as marketing, accounting and production personnel about the new system.	C	2	2	2
F	Testing of the new computerized system manually to make sure that it is logical.	B	2	3	4
G	Equipment testing and changes	A	2	4	12
H	System training	A,F,D	3	7	11
I	System testing to check for errors	A,F,D	2	4	6
J	Trial run and changeover to the system	H,I,E	1	10	13
K	Final debugging of the computer system	G	1	4	7

Find the expected project completion time and project variance. Suppose the production manager told the customers that the new order processing system would be completely installed in 30 days. What is the probability that it will, in fact, be ready by that time?

You can use the following extract of Table showing Area under the Normal Curve in answering the question:

Z	1.10	1.12	1.14	1.7	1.9	2.0

Area .3643 .3686 .3729 .4554 .4713 .4772

Q4. The President of Drug Manufacturing Company has an opportunity to participate in a development of a drug that has a sales price of Rs. 90,00,000 but it must be completed within 80 weeks. Since the President at 8:30 a.m. on Monday (start of the 80 week) has to determine on the profitability of the project on an 80 week basis, so that the firm can start the production order at 10 a.m. in order to stay within 80 weeks demanded by the customer whereas the time/cost is based on 100 week basis. A table of times and cost is given below.

Event	Preceding Event	Normal Time (Weeks)	Normal Cost (Rs.)	Crash Time (Weeks)	Crash Cost (Rs.)
4	1	20	8,00,000	10	13,00,000
2	1	20	17,00,000	10	19,00,000
3	1	60	11,00,000	50	13,00,000
4	2	40	6,00,000	30	10,00,000
3	2	20	9,00,000	10	11,00,000
5	2	70	8,50,000	60	12,00,000
5	4	40	10,00,000	30	16,00,000
5	3	30	5,00,000	20	7,00,000

Did the president accept the project?

Q5. What do you understand by resources smoothing? The activities of a project in a Drug Manufacturing Company are tabulated below:

Activity	Time (days)	Resource (men)
1-2	2	6
1-3	2	4
1-4	2	3
2-3	2	7
3-5	3	2
4-5	3	8
5-6	3	1
1-6	3	9

a) Draw the resource aggregation graph using early start schedule.
b) Carry out resource smoothing and draw the best schedule and corresponding resource usage profile.

(All the Best)