University Exam. Operations Specialisation MMS-III

Con. 5284-08. BB-8532

(FURTHER REVISED COURSE)

Operations Planning & Control.

(3 Hours) [Total Marks : 60

N.B. (1) Answer any **three** questions from **Section I** and **all** questions from **Section II**.
(2) **Marks** are indicated on **right** side of the questions.

Section I—(30 Marks)

1. (a) What is time series analysis ? Explain the components of time series. 4
(b) Sale of TV and the corresponding advertising budget are as shown below. What is the expected forecast for TV if the advertising budget is Rs. 12,000 ? 6

Sales ('00 units)	20	10	35	20	25	15
Advt. Budget Rs. ('000s)	7	5	15	8	9	6

2. (a) What are the merits of having job-order type system of production and of a line production system ? How would you design a system which may set the best of both ? 5
(b) 5 customer orders are to be processed in a job shop. The sequence of their order is as shown below. The shop manager wants to ensure all jobs are done in time. Will he be successful in his attempt ? Suggest the best sequence such to use with explanation. 5

Job	A	B	C	D	E
Job time (days)	3	4	2	6	1
Due days hour	5	6	7	9	2

(Compare for only FCFS, SPT and EDD priority rule)

3. (a) Explain the various strategies associated with aggregate planning. 5
(b) If 2400 fans are to be made in 40 hour week, what should be the minimum number of workstations required ? The total task time is estimated to be around 244 seconds. What will the efficiency of this line ? 5

4. (a) Suppose you are given 3 alternative design for the layout of a shop floor in a manufacturing organisation, how will you decide which of the 3 is the most appropriate. 5
(b) A company manufactures automotive wheel for a large number of customers. The manufacturing process is same for all types of wheel and it consists of rim line, flange line, lock ring line, discline and assembly line. Individual components lines supply components to assembly line. The assembly line has capacity to produce 200 automative wheel per day. The total set up cost to set machine in each component line to change over from one wheel to another works out to be Rs. 1,000. One of the major customer of the company is a two wheeler manufacturer. Whose delivery schedule requires supply of 80 wheels per day. The manufacturing cost of the automotive wheel has been computed at Rs. 1200 each. And the inventory carrying cost are estimated at 25% of the average inventory investment. What should be the optimum batch size to be planned ? (25 working days per month) 5

5. Write short notes (any **two**) :—
(a) Flexible Manufacturing System (FMS) 5
(b) Enterprise Resource Planning (ERP) 5
(c) Queuing Theory 5
(d) Gantt Chart. 5

[TURN OVER

Section II

6. Electric Control Pvt. Limited (ECL) is a manufacturer of electrical control panels. It was started 10 years ago by Mr. Aggerwal an entrepreneur, who did not have a formal business management education.

Within a few year of its inception it produced high volume of standard products. Demand was very high and the company managed its inventory on an order point system so as to ensure adequate stock to meet customer service. During the last few years, the company started booking order which were customized. By now the company had moved from it initial status as a high volume production of standard panels to a customized production control panel.

In recent years, the company had accumulated a backlog of 10 months. It would have been more but for some recent cancellation of order. The company did not turn down any order. With this backlog, planning department did not feel the need for demand forecasting and master scheduling. The orders received were put into a detailed schedule. This resulted in most of the order slipping the delivery deadline and needed continuous expedition to push them through the production shop. Most of the major orders ended up with a delay of 12 to 18 weeks delay. These delays resulted in customer dissatisfaction and also affected new business. The company in additon to shipment delays was having problem of cost overrun. Most of the departments were exceeding their cost budgets resulting in high negative cost variance.

After a detailed discussion with the planning staff Mr. Aggerwal realized that most of the delays resulted from non-availability of critical items. The inventory control seems to be poorly functioning. Another major contribution to the problem was changes from design department and sales. These changes came much later stage of production resulting in upsetting the production plan and changes in production schedules.

Questions for discussion :

(a) What factors are the contributors to increasing cost and delays in executing orders ?
(b) What are your suggestion to solve the problems of ECL.
(c) What changes would you recommend to Mr. Aggerwal for improvement in PPC.