193 - NrdHi-8-09.Mk

Con. 4955-09.

DS-5963

(3 Hours) [Total Marks : 60

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

Section I

1. (a) What are the various components of forecasting ? 4
   (b) Using regression analysis, find the advertising budget necesssary for a distributor 6
       of tractors to achieve sales of 30 units. Sales of the previous six months and
       the corresponding advertising budgets are given below in the table :—

Sales (units)	21	11	37	22	24	15
Ad Budget (Rs.) (in '000)	7	5	14	8	9	6

2. (a) How does OPC function change in different types of manufacturing/service 5
       systems ? Explain the differences with reference to each of these systems.
   (b) 5 customer orders are to be processed in a job shop. The sequence of their 5
       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 of the following
       sequence rules to use with explanation.
       * First Come First Served
       * Shortest Processing Time
       * Earliest Due Date

Job	A	B	C	D	E
Job Times (days)	3	4	2	6	1
Due Days hence	5	6	7	9	2

3. (a) Explain Johnson's Job Sequencing Rules. 5
   (b) Calculate the Cycle time, No. of work stations and efficiency of line as per details 5
       given below. Draw the precedence diagram.
       The demand is for 100 units to be produced every 12 hours.

Task	Precedence	Time (min)
A	—	3
B	A	5
C	—	2
D	B, C	4
E	D	2

4. What functions of production planning and control can be exercised in constructing 10
   and controlling a timetable for a bus service along a specified route in a city ?

5. Write short notes on any **two** :— 10
   (a) Factories of future   (c) Master Production Schedule
   (b) Lean Manufacturing   (d) Types of Forecasting Models.

[TURN OVER

Section II

6. Auto Parts, Inc., is a distributor of automotive replacement parts. With no manufacturing   **30**
    capability, all the products it sells are purchased, assembled and repackaged. Auto
    Parts, Inc., does have extensive inventory and assembly facilities. Among its products
    are private-label carburetor and ignition kits. The company has been experiencing
    difficulties for the last 2 years. First, profits have fallen considerably. Second, customer-
    service levels have declined, with late deliveries now exceeding 25% of orders. Third,
    customer returns have been rising at a rate of 3% per month.

    Phil Houghton, Vice President of sales, claims that most of the problems are with
    the assembly department. He says that although Auto Parts, Inc., has accurate BOM
    indicating what goes into each product, it is not producing the proper mix of the
    product. He also believes it has poor quality control, its productivity has fallen, and
    as a result, its costs are too high.

    Treasurer Dick Houser believes that problems are due to investment in the wrong
    inventories. He thinks that marketing has too many options and products. Dick also
    thinks that purchasing department buyers have been hedging their inventories and
    requirements with excess purchasing commitments.

    Assembly manager John Burnham says, "The symptom is that we have a lot of parts
    in inventory, but no place to assemble them in the production schedule. When we
    have the right part," he adds, "it is not very good, but we use it anyway to meet the
    schedule."

    John Tolbert, manager of purchasing, has taken the stance that purchasing has not
    let Auto Parts, Inc., down. He has stuck by his old suppliers, used historical data to
    determine requirements, maintained what he views as excellent prices from suppliers,
    and evaluated new sources of supply with a view toward lowering cost. Where possible,
    John reacted to the increased pressure for profitability by emphasizing low cost and
    early delivery.

    As president of Auto Parts, Inc., you must get the firm back on a course towards improved
    profitability.

    Questions for discussion :—

    (1) Identify both the symptoms and problems at Auto Parts, Inc.

    (2) What specific changes would you implement ?