

QP Code : 17562

(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. Briefly discuss the qualitative and quantitative methods used for forecasting demand.

(4 marks)

- b. The table below shows the monthly demand over 6 month period for a product.

(6 marks)

Month	1	2	3	4	5	6
Demand (units)	120	130	110	140	110	130

- i. Determine the forecast of demand for the 7th month using "3 month" simple moving average method.
ii. If the weightage given for the demand for 6th, 5th and 4th months are 0.5, 0.3 and 0.2 respectively, determine the forecast for 7th month using weighted moving average method.
iii. Which of the two forecasts is more reliable using the MSE criterion?

2.

- a. What are the different types of capacity? Explain each with example.

(4 marks)

- b. Process 'A' and 'B' are both capable of manufacturing a product whose comparison are as follows -

(6 marks)

Particular	Process "A"	Process "B"
Investment	Rs. 50,000/-	Rs. 80,000/-
Interest on Capital invested	15% per annum	15% per annum
Hourly Charges (Wages + Power)	Rs. 10/-	Rs. 8/-
No. of pieces produced per hour	5	8
Annual operating hours	2000	2000

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- i. Which process will have the lower cost per unit of output, if run for the whole year?
- ii. If only 4,000 pieces are to be produced in a year, which machine would have the lower cost per piece?
- iii. Will your answer to (i) above query if you are informed that 12.5% of the output of process B gets rejected at the inspection stage? If so, what would be the new solution?

3.

- a. Explain the process of line balancing. (4 marks)
- b. Calculate the following from the given data - (6 marks)
 - i. Line efficiency
 - ii. Balanced Delay
 - iii. Minimum number of theoretical work stations required

Task	a	b	c	d	e	f	g	H
Immediate Predecessor	-	a	b	b	d	c	-	f & e
Task Time	2	1.2	5.5	2.5	7	2.0	3.0	2.0

4. How does OPC function change in three types of production? Explain with reference to the differences in the three types of production. (10 marks)
5. Write short note on any two of the following- (10 marks)
 - a. Rough Cut Capacity Planning
 - b. Lean Manufacturing
 - c. Categorization of Service Systems
 - d. ERP

SECTION - II

6.

- a. (15 marks)

A boat company has a demand forecast for its sports boats for the next 6 months as shown below:

Month	January	February	March	April	May	June
Demand	250	300	420	560	610	580

Currently there are 10 workers assigned to the production line each capable of producing 15 boats per month. It is assumed that each month has equal number of production days. Hiring cost worker is Rs. 400.00 and termination cost is Rs. 1,000.00. Standard production cost is Rs. 300.00 and overtime cost is additional Rs. 60.00. Each worker can produce only 3 boats per month on over time. If the boats are held in stock, inventory holding cost is Rs. 6.00 per boat per month. Shortage cost is Rs. 120.00 per boat per month.

- i. Using this data set up a chase approach for planning and calculate total cost of chase approach.
- ii. Using the given data set up a level approach for planning and work out total cost of level approach.

b.

(15 marks)

When asked to express his opinion, a foreman in charge of a machine tool shop said: "Why bother about production planning and control? Most of it consists of too much paper work, which has little bearing on reality. In our firm each foreman responsible for a section gets his instructions once a month together with drawings of the parts to be machined. It is then the foreman's responsibility to do all the routing, estimating and machine loading within his section. When each task is finished, the production department is notified. If the parts have to undergo additional operations in another section during the same month, an order is issued to transfer the parts to that section. If not, the parts wait until the next date for monthly allocation of tasks. The system is smooth and efficient – and it works".

Suppose you were assigned the tasks of analyzing the present system in order to determine its effectiveness. How would you set about doing it?

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