

CBCS SCHEME

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18IP71

Seventh Semester B.E. Degree Examination, Feb./Mar. 2022 Operations Management

Time: 3 hrs.

Max. Marks: 100

**Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. Missing data, if any, may be suitably assumed.**

Module-1

- 1 a. What is the concept of operations management? Explain the system approach. (05 Marks)
- b. What are the objectives of operations management? (05 Marks)
- c. Differentiate between production and productivity. What are the internal and external factors do affect productivity. Briefly explain. (10 Marks)

OR

- 2 a. Explain frame work for decision making. (10 Marks)
- b. Explain the Decision Methodology. (10 Marks)

Module-2

- 3 a. Explain the uses of demand forecasting. (10 Marks)
- b. Explain the forecasting methods. (10 Marks)

OR

- 4 a. The past data for the sales of wet grinders of a particular company in an area is shown below.

Year and month	Jan 2001	Feb 2001	March 2001	April 2001	May 2001	June 2001
Sales	585	610	675	750	860	970

Forecast the demand for the month of July 2001 using : i) a-three month moving average
ii) a-three month moving average, where the weights are 0.5 for the latest month, 0.3 and 0.2 for the months previous to the respectively. (10 Marks)

- b. A firm is manufacturing automobiles, the sales for the last five years are :

Year	1971	1972	1973	1974	1975
Sales	110	130	150	160	180
Demand index	100	110	140	150	200

Make a forecast for the year 1976 by least square method of linear regression, assuming the demand index is 210. (10 Marks)

Module-3

- 5 a. Explain aggregate plan and master schedule. (10 Marks)
- b. Explain aggregate planning methods. (10 Marks)

OR

- 6 a. Explain scheduling objectives. (10 Marks)
- b. Explain master scheduling methods. (10 Marks)

Module-4

- 7 a. Explain the concept and terminology for material requirement planning. (10 Marks)
- b. Explain the capacity requirement planning activities. (10 Marks)

OR

- 8 a. Explain production activity control. (10 Marks)
 b. Explain the data requirement for production activity control. (10 Marks)

Module-5

- 9 a. Six jobs are to be processed on two machines. The processing time for each job on each machine is given below. Find the sequence of jobs that minimizes the total elapsed time to complete the jobs. Also calculate the minimum elapsed time. The jobs are to be processed first on machine m_1 and then on machine m_2 .

Machines \ Jobs	A	B	C	D	E	F
m_1	4	8	3	6	7	5
m_2	6	3	7	2	8	4

(10 Marks)

- b. Find the sequence that minimizes the total elapsed time (in hours) required to complete the following jobs on 3 machines m_1, m_2, m_3 in the order m_1, m_2, m_3 .

Machines \ Jobs	A	B	C	D	E
m_1	5	7	6	9	5
m_2	2	1	4	5	3
m_3	3	7	5	6	7

Also find the total minimum elapsed time.

(10 Marks)

OR

- 10 a. Explain clearly the concept of single machine scheduling. (06 Marks)
 b. Find the make span using CDS heuristic for the following flow shop problem, in which machining time is given in hours.

Job (j)	t_{j1}	t_{j2}	t_{j3}	t_{j4}
1	4	3	7	8
2	3	7	2	5
3	1	2	4	7
4	3	4	3	2

(14 Marks)

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