

GUJARAT TECHNOLOGICAL UNIVERSITY**B.VOC - SEMESTER- VI EXAMINATION – SUMMER 2024****Subject Code: 21160302****Date: 16-05-2024****Subject Name: Production Planning & Control****Time: 10:30 AM TO 12:30 PM****Total Marks: 50****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

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| Q.1 (a) Explain different types of production system. | 05 |
| (b) Define following terms: (1) Design capacity (2) Effective capacity (3) Actual capacity | 05 |

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| Q.2 (a) What is Demand forecasting. Explain its importance. | 05 |
| (b) Explain Delphi method of demand forecasting. | 05 |

OR

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| (b) Explain moving average method of Demand forecasting. | 05 |
| Q.3 (a) The sales data for Six-month period of ABC company are as under for the year 2022: | 05 |

Month	Jul	Aug	Sep	Oct	Nov	Dec
Sales (Rs. Thousands)	18	15	20	18	22	20

Complete three months moving average.

Forecast demand for the month January 2023.

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| (b) What is Capacity planning? Explain its importance. | 05 |
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| Q.3 (a) The demand for the particular product for the last 8 periods is given. Compute exponentially smoothed forecast. Take $\alpha = 0.3$. Assume initial forecast = 15. | 05 |
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Period	1	2	3	4	5	6	7	8
Demand	10	18	29	15	30	12	16	8

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| (b) What is Lead Strategy and Lag strategy in capacity planning. | 05 |
| Q.4 (a) What is sequencing? Discuss about various assumption made to solve problem by sequencing method. | 05 |
| (b) Explain Master schedule and Perpetual schedule. | 05 |

OR

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| Q.4 (a) Define Scheduling and explain Objectives of Scheduling. | 05 |
| (b) What are Priority rules? Explain in brief. | 05 |

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| Q.5 (a) The process time for five jobs and due date (days) of the jobs are given in the following table. Job may be sequence according to following rules: | 05 |
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(1) Minimum process time

(2) First come First serve

Job	1	2	3	4	5
Process Time	3	6	9	5	7
Due Date (Days)	6	20	30	12	25

Find Total completion time, Average completion time and Average job lateness.

- (b) Six jobs are to be processed on two machines M_1 and M_2 in the order M_1M_2 . Processing time in hours are given below: 05

Jobs		1	2	3	4	5	6
Processing Time (hours)	M_1	5	9	4	7	8	6
	M_2	7	4	8	3	9	5

Determine the sequence that minimise total elapsed time. Find out total elapsed time and idle time for both machines.

OR

- Q.5** (a) For the given data, propose efficient schedule using: 05

(1) Longest process time (2) Due date

Job	A	B	C	D	E
Processing Time (days)	9	7	5	11	6
Due Date	16	20	25	15	40

Find Total completion time, Average completion time and Average job lateness.

- (b) Five jobs are to be processed on two machine M_1 and M_2 in the order M_1M_2 . Processing time in hours are given below: 05

Jobs	Processing time hours	
	Machine M_1	Machine M_2
1	5	2
2	1	6
3	9	7
4	3	8
5	10	4

Find the optimal sequence and total elapsed time. Also find idle time for machines.
