

22569

11920

3 Hours / 70 Marks

Seat No.

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- Instructions* –
- (1) All Questions are *Compulsory*.
 - (2) Illustrate your answers with neat sketches wherever necessary.
 - (3) Figures to the right indicate full marks.
 - (4) Assume suitable data, if necessary.
 - (5) Use of Non-programmable Electronic Pocket Calculator is permissible.
 - (6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any FIVE of the following:

10

- a) List the types of production systems.
- b) State the importance of PPC.
- c) State the benefits of JIT.
- d) Write the objectives of method study.
- e) State the importance of drawing network diagram.
- f) State the principle of Agile manufacturing.
- g) State the importance of operation research.

P.T.O.

2. Attempt any THREE of the following: 12

- a) Explain product layout. State its advantages.
- b) Write the basic steps in forecasting.
- c) Explain ABC analysis.
- d) Describe two handed process chart with example.

3. Attempt any THREE of the following: 12

- a) Compare product layout and process layout.
- b) List the factors influencing plant location.
- c) The table below shows the demand for a particular brand of fax machine in a department store in each of the last twelve months.

Month	1	2	3	4	5	6	7	8	9	10	11	12
Demand	12	15	19	23	27	30	32	33	37	41	49	58

Calculate the four month moving average for month's 4 to 12.
What would be your forecast for the demand in month 13?

- d) Explain the term manufacturing resource planning (MRP-II)

4. Attempt any THREE of the following: 12

- a) Write the procedure of process planning from raw material to finish product in Automobile manufacturing industry.
- b) Write the general considerations in principle of motion economy.
- c) Find Economic order quantity from the following data.

Average annual demand - 40,000 units

Inventory carrying cost - 12% of the unit value per year

Cost of placing an order - Rs. 75

Cost of unit - Rs. 2

- d) Describe predetermined motion time standards.
- e) Compare lean production and agile manufacturing.

5. Attempt any TWO of the following:

12

- Describe Gantt chart. Draw its sketch and state its advantages.
- An office worker wants to set standard time to complete a task K comprised of three job elements. He clocked work elements and chose to take 6 cycles as shown in table. The allowance for the task is 12% and performance rating for each element is also given in the table. Find the normal time and standard time to complete the task.
- Describe the procedure for method study with the help of operation process chart.

6. Attempt any TWO of the following:

12

- A project schedule has the following characteristics as shown in table.

Activity	Name	Time	Activity	Name	Time (days)
1-2	A	4	5-6	G	4
1-3	B	1	5-7	H	8
2-4	C	1	6-8	I	1
3-4	D	1	7-8	J	2
3-5	E	6	8-10	K	5
4-9	F	5	9-10	L	7

- Construct PERT network
 - Find the critical path
- Solve the following linear programming problem graphically.

Maximise $Z = 4x + y$

Subject to the constraints :

$$x + y \leq 50$$

$$3x + y \leq 90$$

$$x \geq 0, y \geq 0$$

- Explain the concept, principles, advantages and limitations of lean manufacturing.