22569

12425

03 Hours / 70 Marks Seat No. | | | | | | | | |

Instructions – (1) All Questions are *Compulsory.*

(2) Answer each next main Question on a new page.

(3) Illustrate your answers with neat sketches wherever necessary.

(4) Figures to the right indicate full marks.

(5) Assume suitable data, if necessary.

(6) Use of Non-programmable Electronic Pocket Calculator is permissible.

(7) 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) Define productivity.

b) State purpose of sales forecasting.

c) State importance of 'Line balancing'.

d) State objectives of method study.

e) State the principle of Agile manufacturing.

f) State importance of Operation Research.

g) Differentiate between PERT and CPM (Any two points)

Marks

2. Attempt any THREE of the following: **12**

a) Discuss productivity improvement techniques.

b) What is 'Make or Buy' Decision? On which factors it depends?

c) Explain 'Master Production Schedule'. State rules for scheduling.

d) Explain flow process chart with suitable example.

3. Attempt any THREE of the following: **12**

a) Discuss factors governing selection of plant location for Automobile industry.

b) Differentiate between line layout and functional layout.

c) Explain MRP-II with block diagram.

d) The following data gives the sales of company for various years. Fit straight line. Forecast the sales for 2020 and 2021.

Year	2013	2014	2015	2016	2017	2018	2019
Sales (000)	16	18	22	17	40	32	31

4. Attempt any THREE of the following: **12**

a) Explain 'Operation Sheet' and its importance in process planning.

b) Explain cyclegraph and chronocyclegraph used for micromotion study.

c) A manufacturer has to supply his customers 3600 units of his product per year. Inventory carrying cost is Rs. 1.2 per unit per annum. The set up cost per run is Rs. 80/-. Find

i) EOQ

ii) Optimum number of orders per annum

d) Explain basic procedure of method study.

e) Compare Mass production and Lean production.

Marks

5. Attempt any TWO of the following: **12**

a) Explain 'Pull System' of production control.

b) The observed time and performance ratings for five elements are given. Compute the standard time assuming rest and personal allowance as 15% and contingency allowance as 2% of basic time.

Element	1	2	3	4	5
Observed time	0.2	0.07	0.5	0.11	0.14
Performance rating (min)	85	90	80	85	80

c) Explain PMTS and its use.

6. Attempt any TWO of the following: **12**

a) Explain concept, principles, advantages and limitations of Lean Manufacturing.

b) A small project is composed of following activities whose time estimates are given below. (Estimated duration in weeks)

Activity	Optimistic	Most likely	Pessimistic
1–2	1	1	7
1–3	1	4	7
1–4	2	2	8
2–5	1	1	1
3–5	2	5	14
4–6	2	5	8
5–6	3	6	15

i) Draw the network and find the critical path.

ii) Find the expected duration and variance for each activity.

c) A company produces two types of dolls A and B. Doll A is of superior quality and B is of lower quality. Profit on doll A is Rs. 5 and profit on doll B is Rs. 3. Raw material required for each doll A is twice that is required for doll B. The supply of raw material is only 1000 per day of doll B. Doll A requires a special crown and only 400 such crowns are available per day. For doll B, only 700 crowns are available per day. Find graphically the product mix so that the company makes maximum profit.