

(3 Hours)

Total Marks: 80

Note:

1. Question No.1 is compulsory
2. Attempt any **three** out of the remaining **Five** questions.
3. Assume suitable data if necessary.

- Q. 1.** Answer **any FOUR** of the following: (20)
- (a) What are the key characteristics of a partnership business ownership?
 - (b) What impact do capital markets have on innovation and entrepreneurship in emerging industries?
 - (c) Explain the factors involved in the growth of an Enterprise.
 - (d) State any four unique characteristics of Entrepreneur.
 - (e) Differentiate between Sales Budget and Marketing Budget?
 - (f) What are the major challenges related to government policies and regulations that micro and small enterprises face?
- Q. 2.** (a) What are the risks and challenges associated with each of the four growth strategies? (10)
- (b) State any four primary activities that are essential for a firm to have a competitive advantage as given by Porter (10)
- Q. 3.** (a) Write short note on Women Entrepreneurship Development with example. (10)
- (b) Entrepreneurs are “Dreamers with vision”. State how. (10)
- Q. 4.** (a) Discuss role of Capital markets in Entrepreneurial Development. (10)
- (b) Explain in short about Industrial Investment Bank of India Ltd. (IIBI) (10)
- Q. 5.** (a) Write in short about MSMED Act 2006. (10)
- (b) Can you state any four features of angel investors that distinguish them from other types of investors? Why are angel investors crucial for the growth of early-stage companies? (10)
- Q. 6.** Answer the following. (20)
- (a) Explain the key components of a project report that are necessary for business planning and implementation?
 - (b) Why is the role of an EDP Cell critical in fostering the growth of small and medium-sized enterprises?

Time:3 hrs

Marks: 80

- N. B.: 1. Question 1 is Compulsory
 2. Attempt any three questions out of the remaining five.
 3. All questions carry equal marks.
 4. Assume suitable data, if required and state it clearly.

1 Attempt any FOUR

20

- List Production and operation function
- Explain Product Life cycle
- List out quantitative forecasting methods and describe any one of the method
- Write short note on Capacity Requirement Planning
- Explain the objectives, constraints and terminology of Line balancing.
- Write notes on Agile Manufacturing production system

2a) Given the following data Prepare a Forecast Demand for 7 the period for using the following approaches

10

Period	1	2	3	4	5	6
Demand	61	66	57	60	67	62

- 3-Period Moving average
- Weighted average using weights of 0.5, 0.3 and 0.2
- Exponential Smoothing with smoothing constant 0.4

Q2 List Manufacturing Resource Planning modules and Explain the following manufacturing planning structure **any one structure** (i) Master Production Schedule (MPS) (ii) Material Requirement Planning

10

Q3 a) What is time series analysis? What are the components of time series? How the forecast is made from the time series?

10

Q3b) The total requirements for a material from an MRP schedule are given in the following table :

10

Total Demand	1	2	3	4	5	6	7	8
	200	400	900	500	200	200	200	1400

The annual demand for this end item is estimated to be 25,000 units over a 50 week per year schedule, or an average of 500 units per week. It costs Rs. 800 to change over the machines in the final assembly department to this end item when a production lot is begun. It costs Rs. 1.10 per unit when one unit of this product must be carried in inventory from one week to another; therefore, when one unit of this product is in ending inventory, it must be carried over as beginning inventory in the next week and incurs the Rs. 1.10 per unit carrying cost. Develop the total carrying costs over the eight week schedule for the lot-for-lot method: **Lot for Lot (LFL)**
Use The following format

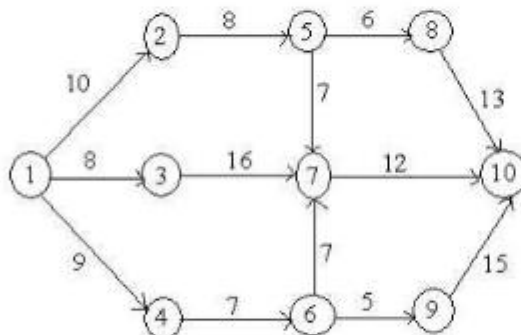
	Weeks								Costs		
	1	2	3	4	5	6	7	8	Carrying	Ordering	Total
Net Requirements											
Beginning Inventory											
Production Lots											
Ending Inventory											

Q4 a) Find the solution of Sequencing Problem 5Jobs x 3 Machine Problem Determine Optimum Processing Time , Machine 1 idle time , Machine 2 idle time . Machine 3 idle time 10

Jobs / Machines	1	2	3	4	5
Machine -1	8	10	6	7	11
Machine-2	5	6	2	3	4
Machine-3	4	9	8	6	5

Q4 b) Explain the various terms associated with ERP. Explain the steps of creating ERP Systems in Manufacturing Industry 10

Q5 a) From the flow diagram below. Determine EST, EFT, LST, LFT and critical path duration time 10



Q5b) Explain Just In Time Manufacturing system in detail. 10

Q6 a) Explain Pillars of Lean Manufacturing in detail. 10

Q6b) What is aggregate planning? Explain aggregate planning strategies in detail 10

Time: 3 hours

Total Marks: 80

- Note:**
1. Assume suitable data if necessary
 2. Figures to the right indicate full marks
 3. Question No. 1 is compulsory
 4. Solve any three out of the remaining five questions

- Q1. Write short notes on following: (Any Four)**
- | | | |
|---|--|----|
| A | Generic Product Development Process | 05 |
| B | Product Design | 05 |
| C | Product Development | 05 |
| D | Modern approaches to product Design and Development. | 05 |
| E | Advantages of Brainstorming | 05 |
| F | Product Architecture. | 05 |
- Q2.**
- | | | |
|---|---|----|
| A | Explain Customer Satisfaction with suitable example. | 05 |
| B | Discuss Quality Function Deployment (QFD). | 05 |
| C | What is a House of Quality? Explain its with diagram in detail. | 10 |
- Q3.**
- | | | |
|---|--|----|
| A | What are the methods of creative thinking? | 05 |
| B | Discuss Generation Concept. | 05 |
| C | Explain Pugh's Concept. | 10 |
- Q4.**
- | | | |
|---|--|----|
| A | Explain Gordon Technique. | 05 |
| B | What is Industrial Design? | 05 |
| C | Explain Design for Assembly in detail. | 10 |
- Q5.**
- | | | |
|---|---|----|
| A | Discuss Design for Environment | 05 |
| B | Describe Design for Serviceability. | 05 |
| C | What is mean by Human Factor in Design? | 10 |
- Q 6.**
- | | | |
|---|--|----|
| A | Write about User Friendly Design. | 05 |
| B | Explain Design for Manufacturing. | 05 |
| C | Discuss guidelines of Design for Robustness. | 10 |

Time: 3 Hours

Max. Marks: 80

- Note: 1. Assume suitable data if necessary
 2. Figures to the right indicate full marks
 3. Question No. 1 is compulsory
 4. Solve any **three** out of the remaining **five** questions

Q1. Solve any four

- A What are the different uses of Smart Textile? 5
 B Write a short note on Uses of polymer Nanocomposite 5
 C Explain different types of mechanical actuators. 5
 D What is Soft Matter? List the properties of it 5
 E Explain in detail about the latest application of Ferro fluids. 5
 F What is the difference between the Soft Magnet and Hard Magnet? 5

Q2.

- A Explain thermoelectric Energy Harvesting Technique with diagram. 5
 B Elaborate the application of smart materials. 5
 C Explain six step actuation processes of the Piezo Inchworm motor 10

Q3.

- A Explain USM process and write advantages and disadvantages of USM 5
 B Explain with neat sketches the one-way and two-way shape memory effect. 5
 C Write a short note on 10
 a. Peltier effect
 b. Types of Nano tube with major application

Q4.

- A Write down the different classes of Self-Replication 5
 B Write a short note on : 5
 1) Artificial Muscles 2) Artificial Skins
 C Explain Selective Power Binding process with neat sketch. 10

Q5.

- A Explain the Direct Metal Deposition process in detail. 5
 B Write a short note on Biomimetic Materials. 5
 C Explain Abrasive water Jet Cutting process and write advantages and disadvantages of it 10

Q 6.

- A List the various types of energy storage. Explain any one of them in detail. 5
 B Write down the advantages of the Generative manufacturing processes. 5
 C Explain SGC (Solid Ground Curing) process and write advantages and disadvantages of SGC. 10

Time: 3 hour

Max. Marks: 80

Note- 1.Question one is compulsory.

2.Solve any three out of remaining five.

- Q.1 Explain any four of the following. 20**
- a Definition of Product Quality and Service Quality
 - b Write Short note on Quality Tool- Fishbone Diagram
 - c Short note on Operating Characteristic Curve (OC-Curve)
 - d List dimensions of quality
 - e Statistical quality control charts
 - f Write Short Note on Quality Function Deployment (QFD)

The Get-Well Hospital has completed a quality improvement project on the time to admit a patient using X-Bar and R-Charts. They now wish to monitor the activity using median and range charts. Determine the central line and control limits with latest data in minutes. As given below 10

Sub Group	X ₁	X ₂	X ₃	Sub Group	X ₁	X ₂	X ₃
1	6	5.7	6.2	13	6.1	6.9	7.4
2	5.4	6.3	6.8	14	6.2	5.2	6.8
3	5.6	5.8	5.2	15	4.9	6.6	6.6
4	5.1	5.7	6.5	16	7	6.4	6.1
5	6.8	6.5	5.5	17	5.4	6.5	6.7
6	5.7	5.2	5	18	6.6	7	6.8
7	5.5	5.1	5.2	19	4.7	6.2	7.1
8	6.1	5.8	6	20	6.7	5.4	6.7
9	5.6	4.9	5.7	21	6.8	6.5	5.2
10	4.4	6.4	6.3	22	5.9	6.4	6
11	6.3	6.9	5	23	6.7	6.3	4.6
12	6.6	7.1	6.2	24	7.4	6.8	6.3

- Q.2 a Describe Customer perception of Quality based on American Society for Quality) 10**
- Q.3 a Explain the Total Quality Management implementation steps and tools involved in industries through technique of Six-Sigma 10**
- b What are the criteria for performance excellence of Malcolm Baldrige national Quality Award? 10**
- Q.4 a Explain Environmental management systems- ISO 14000 Series Standards, Integration of ISO 14000 with ISO 9000. 10**
- b Describe Juran Quality gurus concepts of quality 10**
- Q.5 a Describe the Bench Marking in the context of TQM 10**
- What is acceptance sampling plan? With OC curve mark and explain following 10**
- b i) Acceptance quality level(AQL) ii) Lot tolerance percent defective(LTPD) iii) Producer's risk iv) Consumer's risk**
- Q.6 Explain any four of the following. 20**
- (i) Short note on Cost of Quality (COQ) 5
 - (ii) Write short note on Taguchi Loss of Function 5
 - (iii) Customer Satisfaction model 5
 - (iv) Supplier Selection 5
 - (v) Information Technology tool role in TQM 5
 - (vi) Write short on TPM Concepts of 5S and KAIZEN 5
