



Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
B.Tech Degree S5 (S,FE) Examination May 2025 (2019 Scheme)

Course Code: MET305
Course Name: INDUSTRIAL & SYSTEMS ENGINEERING

Max. Marks: 100

Duration: 3 Hours

PART A*(Answer all questions; each question carries 3 marks)*

		Marks
1	Write any six needs of standardization.	3
2	List any six objectives of product design.	3
3	Compare JIT manufacturing and Conventional manufacturing.	3
4	Describe the concept of unit load.	3
5	Discuss Industrial relations and list any four objectives of industrial relations.	3
6	Explain the types of workers' participation in management.	3
7	List any three advantages and any three disadvantages of agile manufacturing.	3
8	Summarize Lean Manufacturing. Write any two advantages of lean manufacturing	3
9	Discuss E-business.	3
10	Explain ERP.	3

PART B*(Answer one full question from each module, each question carries 14 marks)***Module -1**

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|----|---|---|
| 11 | a) Discuss principles of product design. | 7 |
| | b) With a neat sketch, explain break-even point and derive the equation for the break-even quantity. | 7 |
| 12 | a) Describe Concurrent Engineering and explain any two principles of concurrent engineering. Write any three merits and any three demerits of concurrent engineering. | 7 |
| | b) Summarize ergonomics and explain any two objectives of ergonomics. Also write any four human factors to be considered while designing a new product. | 7 |

Module -2

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|----|---|---|
| 13 | a) Describe any seven types of material handling equipment. | 7 |
| | b) Explain the following with neat sketches: | 7 |
| | i. P system | |

ii. Q system

- 14 a) ABC company has to supply its customer 3600 units of its product per year. 8
Inventory carrying cost is Rs 1.2 per unit per annum. The set-up cost is Rs 80. Find:
a) Economic Order Quantity, b) Optimum number of orders per annum, c)
Minimum Inventory Cost, and d) Optimum period of supply per optimum order.
- b) Discuss purchasing and write eight objectives of purchasing. 6

Module -3

- 15 a) Describe communication and explain any five barriers to communication. 7
b) Discuss respiratory protective devices. 7
- 16 a) What is a trade union? Describe any three key functions of a trade union. Also, list 7
any three advantages and disadvantages of trade unions.
- b) Summarize industrial safety. Write any four objectives of industrial safety and 7
explain any three measures of industrial safety.

Module -4

- 17 a) Discuss any seven tools of lean manufacturing. 7
b) Describe the conceptual framework of agile manufacturing. 7
- 18 a) Explain 5S methodology in lean manufacturing. 7
b) Summarize agile manufacturing and explain any four characteristics of agile 7
manufacturing.

Module -5

- 19 a) Explain any four challenges faced in ERP implementation in industry. 8
b) Describe data warehouse architecture with a neat diagram. 6
- 20 a) Discuss any four success factors of ERP implementation. 8
b) Summarize Business Process Re-engineering and explain the stages in the design 6
for reengineering.
