

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S5 (R,S) (FT/WP)(S7 PT) Examination November 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 | Define industrial engineering with its four functions. | 3 |
| 2 | Summarize Concurrent Engineering. | 3 |
| 3 | Discuss value analysis. List any two advantages of value analysis | 3 |
| 4 | Write any three benefits of JIT manufacturing. | 3 |
| 5 | Explain the types of communication in industry. | 3 |
| 6 | Write any six factors contributing to industrial fatigue. | 3 |
| 7 | Describe any three barriers to agile manufacturing. | 3 |
| 8 | Discuss any three wastes of lean manufacturing. | 3 |
| 9 | Summarize E-commerce. | 3 |
| 10 | List any six challenges for ERP implementation. | 3 |

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

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|----|--|---|
| 11 | a) With a neat diagram, explain the different stages in the development of product design. | 7 |
| | b) ABC Company plans to sell an article at a local market. The articles are purchased at Rs 5/- per piece on the condition that all unsold articles will be returned. The rent for the space is Rs 2000/-. The article will be sold at Rs 9/- per piece. | 7 |
| | i) Determine the number of articles which must be sold: | |
| | (a) To break-even point | |
| | (b) To earn Rs 400/- as profit | |
| | ii) If the company sells 750 articles, calculate the margin of safety and profit. | |
| 12 | a) Discuss the terms: | 7 |
| | (a) Standardisation and write any four needs of standardization | |
| | (b) Diversification. | |

- b) Explain the product life cycle and its importance in Industrial Engineering. How does it guide marketing decisions? 7

Module -2

- 13 a) Describe different costs associated with inventory. 7
 b) Explain the purchasing procedure followed in any industry. 7
 14 a) Discuss Economic Order Quantity with a neat sketch and derive the expression for Economic Order Quantity. 14

Module -3

- 15 a) Summarize trade unions and write any four objectives. Explain any three functions of the trade union. 7
 b) Discuss Industrial disputes and describe any two methods to settle industrial disputes. 7
 16 a) Describe Industrial safety and explain any five measures for ensuring industrial safety. 7
 b) Explain Industrial relations and describe any three factors affecting industrial relations. 7

Module -4

- 17 a) Discuss all principles of lean manufacturing. 7
 b) Summarize agile manufacturing. Write any four merits and any four demerits of agile manufacturing. 7
 18 a) Describe lean manufacturing. Also, write four points to compare lean manufacturing and conventional manufacturing. 7
 b) Explain the characteristics of agile manufacturing. 7

Module -5

- 19 a) Describe any four myths of the ERP system. 8
 b) Discuss data mining and explain the procedure of data mining process. 6
 20 a) Describe ERP and list any four merits and any four demerits of the ERP system. 8
 b) Summarize data warehousing and list any three merits and demerits of data warehousing. 6
