

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S5 (S,FE) (FT/WP/S7PT) Examinations May/June 2026 (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 | Mention any three modern concepts of Industrial Engineering. | 3 |
| 2 | What are quality considerations in product design? | 3 |
| 3 | Differentiate between Materials Management and Inventory Management | 3 |
| 4 | What are the prerequisites for successful JIT implementation? | 3 |
| 5 | Why is Industrial Relations important for organizational growth? | 3 |
| 6 | List any six causes of industrial fatigue. | 3 |
| 7 | Why overproduction is considered the most serious waste in Lean Manufacturing? | 3 |
| 8 | Name the stages of 5S. | 3 |
| 9 | Define Business Process Reengineering (BPR). | 3 |
| 10 | How does ERP support strategic decision-making? | 3 |

PART B

(Answer one full question from each module, each question carries 14 marks)

Module -1

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|----|--|---|
| 11 | a) Explain Product Life Cycle (PLC). | 7 |
| | b) For a firm the fixed cost for a year is Rs 800000. Variable cost per unit is Rs 49. The estimated sales for the period are valued at Rs 2000000. Each unit sells at Rs 200. | 7 |
| | a) Find the breakeven point. | |
| | b) If Rs 1600000 will be the likely sales turnover for the next budget period, calculate the estimated contribution and profit. | |
| 12 | a) Explain Cost–Volume–Profit (CVP) Analysis. | 7 |
| | b) Compare production alternatives based on economic aspects. | 7 |

Module -2

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|----|----|---|----|
| 13 | a) | Discuss the factors influencing Make-or-Buy Decisions with suitable examples. | 7 |
| | b) | Explain how Material Handling contributes to productivity improvement. | 7 |
| 14 | a) | Explain Purchasing Procedure in detail and discuss its significance. | 14 |

Module -3

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|----|----|---|---|
| 15 | a) | Explain the importance of Personal Protective Equipment (PPE) in industrial safety. | 7 |
| | b) | Explain Workers' Participation in Management (WPM) and its benefits. | 7 |
| 16 | a) | Explain the role and importance of communication in industry. | 7 |
| | b) | What is collective bargaining? Explain its process and advantages. | 7 |

Module -4

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|----|----|---|---|
| 17 | a) | Explain how 5S contributes to waste elimination in Lean Manufacturing. | 7 |
| | b) | Explain the business need for Agile Manufacturing in modern industries. | 7 |
| 18 | a) | Discuss the approaches used to enhance agility in manufacturing. | 7 |
| | b) | Explain the need and benefits of Lean Manufacturing. | 7 |

Module -5

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|----|----|---|---|
| 19 | a) | Discuss the major benefits of ERP implementation. | 7 |
| | b) | Explain the role of Data Warehousing, Data Mining, and OLAP in ERP systems. | 7 |
| 20 | a) | Explain ERP and its relationship with SCM, CRM, and BI. | 7 |
| | b) | Compare ERP solutions for small, medium, and large enterprises. | 7 |
