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Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S5 (R, S) / S7 (PT) (R,S) / S5 (WP) (R) Examination November 2024 (2019 Scheme)

Course Code: MET 305

Course Name: INDUSTRIAL & SYSTEMS ENGINEERING

Max. Marks: 100

Duration: 3 Hours

PART A

(Answer all questions; each question carries 3 marks)

		Marks
1	List any six fields of application of industrial engineering.	3
2	Describe the following terms. a) Standardization b) Simplification and c) Diversification.	3
3	Explain any three important factors need to be considered while selecting material handling equipments.	3
4	Explain the quantity discount model of inventory management.	3
5	What are the methods for reducing industrial fatigue?	3
6	Describe the functions of trade union.	3
7	Explain how wastes are eliminated using 5S methodology in lean manufacturing.	3
8	Define agile manufacturing. List any four advantages of agile manufacturing.	3
9	List out any six myths about ERP.	3
10	Explain the term 'Business Process Re-engineering'.	3

PART B

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

Module -1

- 11 a) Explain the evolution of modern concepts of industrial engineering. 8
- b) Explain concurrent engineering. 6
- 12 a) The fixed cost for a company is Rs. 5,00,000 and variable cost per unit is Rs. 25. 8
- The estimated sales for the period is valued at Rs. 15,00,000. Each unit sells at Rs. 150. Determine:
- a) Break-even point in rupees.
- b) Rs. 12,00,000 will be the likely sales turnover for the next period, calculate the estimated contribution and profit.

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- c) If a profit target of Rs. 6,50,000 has been budgeted, compute the turnover required.
- b) Explain the stages of product life cycle with the help of a sketch. 6

Module -2

- 13 a) Explain the principles of material handling. 10
b) What is value analysis? Explain any three types of value. 4
- 14 a) ARM industry needs 5400 units per year of a bought-out component which will be used in its main product. The ordering cost is Rs. 250 per order and the carrying cost per unit per year is Rs. 30. Find: 10
a) the economic order quantity (EOQ).
b) the number of orders per year
c) the time between successive orders.
d) the total cost.
- b) Explain the concept of 'just-in-time' manufacturing system. 4

Module -3

- 15 a) What is personal protective equipment (PPE)? What are the categories of PPE? Explain any four types of non-respiratory PPE. 14
- 16 a) Why communication is important in an industry? Explain. 7
b) Explain the causes for industrial disputes. 7

Module -4

- 17 a) What are the advantages of lean manufacturing comparing to conventional manufacturing? Explain. 7
b) Explain the seven deadly wastes in conventional manufacturing. 7
- 18 a) Describe the conceptual framework for agile manufacturing 7
b) Explain the characteristics of agile manufacturing 7

Module -5

- 19 a) Explain the benefits of implementing ERP. 7
b) Explain the following concepts. a) data warehousing, and b) data mining. 7
- 20 a) Describe the concept of product life cycle management. 7
b) With a suitable example explain the concept of supply chain management. 7
