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Reg No.:_____   Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S5 (R, S) / S7 (PT) (R) Examination December 2023 (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 functions of industrial engineering.	3
2	What is a prototype? Explain the importance of prototype in product design.	3
3	What are the factors influencing make or buy decisions?	3
4	Explain the concept of JIT manufacturing system.	3
5	What are the methods for reducing industrial fatigue?	3
6	Explain the causes of industrial disputes.	3
7	Explain 5s methodology.	3
8	What is agile manufacturing?	3
9	What are the challenges in implementing ERP in industries?	3
10	Explain the term Business Process Reengineering.	3

PART B

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

Module -1

11 a) 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.   6

       (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.

   b) With a neat sketch explain the different stages of a product life cycle.   8

12 a) Explain the terms (i) Standardisation (ii) Diversification   10

   b) Explain concurrent engineering.   4

Module -2

13 a) With neat sketches compare P and Q systems of inventory. 8

b) A manufacturer has to supply his customers 3600 units of his product per year. 6
Inventory carrying cost amounts Rs 1.2 per unit per annum. The setup cost per run
is Rs 80. Find:

    (i)   EOQ

    (ii) Optimum number of orders per annum

    (iii) Optimum period of supply per optimum order.

14 a) Derive Harri's formulae for Economic Order Quantity stating all the assumptions. 7

b) Explain the principles of material handling. 7

Module -3

15 Explain any seven personal protective devices used in an industry. 14

16 a) Explain (i) Workers participation in management (ii) Collective bargaining 9

b) Explain the importance of communication in an industry. 5

Module -4

17 a) Compare conventional and lean manufacturing systems. 6

b) List and explain the different types of wastes involved in lean manufacturing. 8

18 a) Describe the conceptual frame work of agile manufacturing. 8

b) Explain how people can be managed in agile organisations. 6

Module -5

19 a) Explain the benefits of ERP implementation in industries. 6

b) Explain the concept of (i) data warehouse (ii) Business intelligence. 8

20 a) With a suitable example explain Supply Chain Management. 7

b) Explain how Online Analytical Processing enhances the process of data mining. 7

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