Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S6 (Minor) Examinations April 2026 (2023 Admn)

Course Code: MET386

Course Name: INDUSTRIAL ENGINEERING

Max. Marks: 100 **Duration: 3 Hours**

PART A

Answer all questions, each carries 3 marks. Marks

1	List and briefly explain any three techniques for improving productivity**.**	(3)
2	Define Industrial Engineering and its main functions.	(3)
3	Define Work Study and its two main components.	(3)
4	What is a Flow Diagram, and how is it used in industrial operations?	(3)
5	Define plant location and its significance in industrial operations.	(3)
6	What is a Travel Chart, and how it is used in plant layout design?	(3)
7	Define Production Planning and Control (PPC) and its significance.	(3)
8	What is a Gantt Chart, and how is it used in scheduling?	(3)
9	Define Statistical Quality Control (SQC) and its importance.	(3)
10	What is the significance of Six Sigma in quality improvement?	(3)

PART B

Answer any one full question from each module, each carries 14 marks.

Module I

11	a)	Explain the evolution of modern concepts in Industrial Engineering and their impact on industry today.	(7)
	b)	Explain the significance of Value Engineering in improving productivity and cost efficiency in manufacturing.	(7)

OR

12	a)	Differentiate between Product Layout and Process Layout**,** highlighting their advantages and disadvantages.	(7)
	b)	Discuss the role of ergonomics in workplace design. Provide examples of its application in industrial settings.	(7)

Module II

13	a)	Explain the procedure of Work Study and its significance in productivity improvement.	(7)
	b)	Discuss the concept of Work Content and techniques to reduce excess work content.	(7)

OR

14	a)	Explain the steps involved in Method Study and its importance in industrial operations.	(7)
	b)	Differentiate between Operation Process Chart, Flow Process Chart, and Two-Hand Process Chart.	(7)

Module III

15	a)	Explain the different types of plant layouts and their characteristics.	(7)
	b)	Discuss the tools and techniques used for plant layout design.	(7)

OR

16	a)	Explain Systematic Layout Planning (SLP) and its significance.	(7)
	b)	Explain the principles of material handling and selection criteria for equipment.	(7)

Module IV

17	a)	Explain the different types of production systems and their characteristics.	(7)
	b)	Discuss demand forecasting methods and their significance in production planning.	(7)

OR

18 a) Explain about Aggregate Planning and its methods. (7)

b) Explain about the Master Production Schedule (MPS) and its techniques. (7)

Module V

19 a) Explain about Statistical Quality Control (SQC) and the causes of variation in quality. (7)

b) Explain about Control Charts for $\bar{X}$ and R and their significance in quality control. (7)

OR

20 a) Explain about Process Capability and Process Capability Index (Cp, Cpk). (7)

b) Explain about Reliability, causes of failures, and the Bathtub Curve. (7)

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