Roll No. | | | | | | | | | | |

ANNA UNIVERSITY (UNIVERSITY DEPARTMENTS)

B.E. / B. Tech / B. Arch (Full Time) - END SEMESTER EXAMINATIONS, NOV/DEC 2024

Industrial Engineering
VIII Semester
IE7801 Manufacturing Automation

(Regulation 2015)

Time: 3hrs

Max.Marks: 100

ADDITIONAL CONTROLLER OF EXAMINATIONS AU CHENNAI 600 025

PART- A (10 x 2 = 20 Marks)
(Answer all Questions)

Q. No	Questions	Marks
1	What is the primary goal of automation strategies in production systems?	2
2	State the relationship between product variety and production volume	2
3	What do you mean by ADC and DAC?	2
4	Give one example requirement of continuous control.	2
5	Enlist the advantages of automated production lines	2
6	State the need for buffers in automated lines	2
7	What is adaptive control? Enlist any one application for adaptive control	2
8	What is the disadvantage of magnetic grippers?	2
9	State the advantages of automated storage systems.	2
10	Enlist any two applications of RFID technology	2

PART- B (5 x 13 = 65 Marks)

Q. No	Questions	Marks
11 (a) (i)	Explain the concept of break-even analysis in manufacturing with a numerical example.(7 marks)	13
(ii)	Discuss the trade-offs between cost, quality, and production speed in manufacturing. (6 marks)	
	(OR)	
11 (b)	(i)Explain Three types of automation in detail also compare the type of automation to production quantity and product variety. (6 marks) (ii). Companies undertake projects in automation and computer-integrated manufacturing. State few good reasons for the same.(7 marks)	13
12 (a)	Write Short notes on	13

	(i) Regulatory Control (7 marks) **(ii)** Feed forward control (6 marks)	
	(OR)	
12 (b)	Write short notes on (i) Any two types of sensors and their applications (7 marks) (ii) Develop ladder logic for OR and AND operation (6 marks)	**13**
13 (a)	Enlist various possible layouts of segmented in-line configurations of automated production lines and explain them with neat sketch.	**13**
	(OR)	
13 (b)	Write short notes on (i) Automated production lines with and without buffers (ii) Line unbalancing concept.	**13**
14 (a)	Explain the Configuration of CNC machine control unit with neat sketch	**13**
	(OR)	
14 (b)	Enlist types of body-and- arm robot configurations with neat sketch and explain their applications	**13**
15 (a)	Explain any two bar code technology in detail with working and application.	**13**
	(OR)	
15 (b)	Write short notes on i. Automated guided vehicle systems (7 marks) ii. AS/RS System (6 marks)	**13**

PART- C (1 x 15 = 15 Marks)

(Q.No. 16 is Compulsory)

Q. No	Questions	Marks
16	Is there a place for manual labor in the modern production system? If yes give examples and situations where manual labor is necessary. Also discuss the effect of complete automation on countries like India.	15