



R20 Regulation

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

Subject code: 3E7CC

B.Tech VII Semester Regular/Supplementary Examinations, December 2024

AUTOMATION IN MANUFACTURING
(Mechanical Engineering)

Maximum Marks: 70

Date:02.01.2025

Duration: 3 hours

- Note:
- 1.This question paper contains two parts A and B.
 2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
 3. Part B consists of 5 Units. Answer any one full question from each unit which carries 10M.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks		(10X2M=20 Marks)	CO	Bloom Tx
1	What is partial automation?		1	1
2	List the merits of the automations in production systems.		1	4
3	Classify the material handling systems.		2	2
4	What are the different types of barcode systems commonly used in industry?		2	1
5	Give the importance of precedence diagram in line balancing.		3	3
6	What is the use of assembly lines?		3	1
7	What is the concept of part family in group technology?		4	1
8	What are the advantages of FMS?		4	1
9	What is lean production?		5	1
10	Differentiate contact and non-contact inspection.		5	4

Part-B

Answer All the following questions.		(5X10M=50Marks)	CO	Bloom Tx
11	Classify different types of automation and discuss the important reasons for automation. [10M]		1	2
OR				
12	A) Differentiate fixed and programmable automation. [5M] B) With a block diagram, explain various levels of automation. [5M]		1	4 5
13	A) Explain material handling system with a neat sketch? [5M] B) How do automated guided vehicles (AGVs) improve material handling in manufacturing environments? [5M]		2	1 1
OR				
14	A) What are the key differences between automated storage systems and traditional manual storage systems? [5M] B) What are the maintenance requirements for automated storage systems, and how can downtime be minimized? [5M]		2	4 1
15	A) What are the various assembly systems used in practice and explain the			2

	advantages of manual single-stage assembly? [5M] B) Briefly discuss about transfer lines. [5M]	3	6
	OR		
16	A) Differentiate between Kilbridge and Wester's method and Ranked positional weights method of line balancing. [5M] B) What are the benefits of automated production lines. [5M]	3	4 1
17	A) What is group technology in a flexible manufacturing system? Explain in detail. [5M] B) What is Production Flow Analysis, and why is it important in manufacturing? [5M]	4	4 1
	OR		
18	A) What is Cellular Manufacturing, and What are its key benefits? [5M] B) What are the key components of an automated assembly system? Explain. [5M]	4	1 5
19	A) What are the types of CMM? Explain any two of them. [5M] B) What are the main goals of implementing Quality function deployment in manufacturing? [5M]	5	5 1
	OR		
20	A) What is automated inspection? Discuss its procedure. [5M] B) What tools and techniques are commonly used in Concurrent Engineering? [5M]	5	1 1