R20 Regulation *Subject code: 3E7CC*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VII Semester Regular Examinations, November 2023

Automation in Manufacturing

(Mechanical Engineering)

Maximum Marks: 70 Date:06.12.2023 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)		Bloom Tx
1	Define automation.	L1
2	Write the importance of PLC in automation.	L1
3	What are the functions of buffer storage?	L1
4	State the objectives of material handling systems.	L1
5	Give the importance of precedence diagram in line balancing.	L1
6	What is the need of assembly lines in an automated system?	L1
7	What is group technology?	L1
8	Write the merits of FMS.	L1
9	What is JIT?	L1
10	Give the difference between contact and non-contact inspection.	L2

Part-B

Answer All the following questions. (5X10M=50Marks)		
11	A. Classify different types of automation and discuss the important reasons for automation in detail. [5M] B. What strategies are framed for automation? [5M]	L2 L1
	OR	
12	A. Discuss the various levels of automation in detail with suitable examples. [5M] B. Explain the types of production systems with suitable examples. [5M]	L2 L2
13	A. What are the methods employed for work part transport? [5M] B. Explain any three with a neat diagram with its merits and demerits. [5M]	L2 L2
	OR	
14	A. Brief out the importance of barcode technology in automation with suitable examples. [5M] B. What are the design aspects considered in an AS/RS system? [5M]	L2 L2
15	Discuss any four methods that should be considered by the designer of a flow line for improving the efficiency of the assembly line. [10M]	L2

	OR	
16	Mention the objectives of automated flow line. Discuss about in-line and rotary type configuration lines. [10M]	L2
17	A. Elaborate production flow analysis in detail with a neat sketch. [5M] B. How assembly systems are analyzed? Explain in detail with suitable examples. [5M]	L2 L2
	OR	
18	What is cellular manufacturing? Explain how it is carried out in an automated assembly system with its merits and demerits. [10M]	L2
19	A. Brief out the importance of shop floor control in detail with its merits and demerits. [5M] B. Write a note on quality function deployment in detail with suitable examples. [5M]	L2 L2
	OR	
20	A. What is automated inspection? Discuss its procedure. [5M] B. Discuss the constructional details of CMM with a neat diagram. [5M]	L2 L2