R20 Regulation *Subject code:3E8CC*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VIII Semester Supplementary Examinations, May 2026

FLEXIBLE MANUFACTURING SYSTEM

(ME)

Maximum Marks: 70 Date:04.05.2026 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)		Marks	CO	Bloom Tx
1	What are the components of FMS?	2M	1	BL2
2	What are the objectives of FMS?	2M	1	BL1
3	What are the types of layout configuration in FMS?	2M	2	BL2
4	How the FMS is classified based on level of flexibility?	2M	2	BL1
5	Write a short note on Group Technology?	2M	3	BL1
6	Write various parts of programmable controllers.	2M	3	BL1
7	Define Types of cell designs.	2M	4	BL1
8	What is Cellular manufacturing?	2M	4	BL1
9	How to applicable FMS in artificial intelligence?	2M	5	BL1
10	How to achieve different types of flexibilities in FMS?	2M	5	BL2

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	Bloom Tx
11	What is flexible manufacturing cell? With a neat sketch explain flexible cell.	10M	1	BL2
	OR			
12	Explain different types of flexibility in manufacturing in FMS environment.	10M	1	BL2
13	Explain five categories of FMS layout for effective material handling in the system.	10M	2	BL2
	OR			
14	Present the methodology for design and implementation of control software for flexible manufacturing systems	10M	2	BL2
15	Give a detailed account of various steps in FMS simulation and process limitations.	10M	3	BL2
	OR			
16	Explain the benefits of hierarchical structure of computers in manufacturing.	10M	3	BL2

17	Explain the concept of part family in Group Technology	10M	4	BL2
	OR			
18	What are the limitations of group technology? Explain the relative benefits of Optiz system and multiclass coding system followed in GT.	10M	4	BL2
19	a) What are the characteristics of networks for communication in manufacturing environments? b) Discuss computer network topologies applied in manufacturing.	5M 5M	5	BL2
	OR			
20	Discuss the applications of expert system and artificial intelligence in the factories of future and how a performance enhancement can be achieved?	10M	5	BL2