U.S.N.										

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

September / October 2023 Supplementary Examinations

Programme: B.E. **Semester: V**
Branch: Mechanical Engineering **Duration: 3 hrs.**
Course Code: 20ME5DEFMS **Max Marks: 100**
Course: Flexible Manufacturing Systems **Date: 14.09.2023**

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may suitably be assumed.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

UNIT - I

1	a)	Explain in detail, the components of Flexible Manufacturing systems.	**10**
	b)	With the help of flowchart, illustrate the areas of application of Flexible Manufacturing system.	**10**

UNIT - II

2	a)	Explain the classification of manufacturing cell.	**10**
	b)	Explain the importance of Data Base Management System in FMS and its application**.**	**10**

UNIT - III

3	a)	Explain the three different methods of part classification and coding used in Group technology.	**10**
	b)	Explain the concept of lean manufacturing and highlight the different types of waste in manufacturing which can be addressed by Lean manufacturing.	**10**

UNIT - IV

4	a)	Differentiate between Aggregate production planning and Master production schedule.	**10**
	b)	Explain the three important phases of shop floor control.	**10**

OR

5	a)	Explain the constructional features and working of Coordinate measuring machine.	**10**
	b)	Highlight the various areas of CMM application.	**10**

UNIT - V

6 a) Following are the data of Automated guided vehicle (AGV) system: **10**

Vehicle Velocity = 45 m/min.

Average distance travelled/delivery = 135m

Pick up time = 45 sec.

Drop off time = 45sec.

Average distance traveling empty = 90 m

Traffic factor = 0.9

Determine the number of vehicles required to satisfy the delivery demand if the delivery demand is 40 deliveries per hour. Also determine the handling system efficiency.

b) Explain the types of Automated guided vehicles. **10**

OR

7 a) Explain the basic components of Automated Storage/Retrivel System. **10**

b) List and explain the various strategies used in Tool management in an FMS. **10**

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