PAPER ID-411039

Roll No:

MTECH
(SEM II) THEORY EXAMINATION 2023-24
FLEXIBLE MANUFACTURING SYSTEM

TIME: 3 HRS   **M.MARKS: 70**

Note: **1.** Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. **Attempt *all* questions in brief.**   **2 x 7 = 14**

a.	What is FMS?
b.	Give the Concept of flexibility
c.	Write the FMS benefits.
d.	Define Cellular manufacturing
e.	Write the applications of GT.
f.	Define Strategic planning in FMS?
g.	List out the stages in Group Technology.

SECTION B

2. **Attempt any *three* of the following:**   **7 x 3 = 21**

a.	List out the components of FMS and explain their role in FMS. What are the objectives of FMS?
b.	What are the benefits of FMS and explain the need of FMS in modern manufacturing environment
c.	Explain five categories of FMS layout for effective material handling in the system.
d.	"A normal industrial practice is to adopt hybrid coding combining mono- code and poly- code in groping the parts in group technology "justify.
e.	What are the various Methods for cell formation? Explain each of them

SECTION C

3. **Attempt any *one* part of the following:**   **7 x 1 = 7**

(a)	With the help of a line diagram give the axes and format information of Vertical machining centre.
(b)	Discuss about the factors to be considered while designing an FMS

4. **Attempt any *one* part of the following:**   **7 x 1 = 7**

(a)	List out different types of FMS layouts? Explain them with the help of line diagram
(b)	Following the data of AGV system: Vehicle velocity = 45 m/min Average distance travelled/delivery = 135 m Pickup time = 45 sec Drop of time = 45 sec Average distance travelling 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.

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5. **Attempt any _one_ part of the following:**   **7 x 1 = 7**

(a)	What are the limitations of group technology? Explain the relative benefits of Optiz system and multiclass coding system followed in Group Technology?
(b)	What do you understand by AGVs? Give the application in automobile industries.

6. **Attempt any _one_ part of the following:**   **7 x 1 = 7**

(a)	Discuss a case study on the implementation of GT concept in any textile sector with necessary sketch
(b)	What is Part machine group analysis? Explain

7. **Attempt any _one_ part of the following:**   **7 x 1 = 7**

(a)	How the Selection of computer hardware and software are sleeted for flexible manufacturing system? Explain in brief
(b)	Give Note on (i) Machine Robots (ii) Process monitoring