Roll No.													

PRESIDENCY UNIVERSITY
BENGALURU

SCHOOL OF ENGINEERING

TEST – 1

Winter Semester: 2021-22
Course Code: MEC 310
Course Name: Flexible Manufacturing Systems
Program & Sem: B.Tech. & VI Sem

Date: 26th April 2022
Time: 1:30 PM to 2:30 PM
Max Marks: 30
Weightage: 15%

Instructions:

(i) Read all the questions carefully and answer accordingly.
(ii) Use of calculator is permitted.

Part A [Memory Recall Questions]

Answer all the Questions. Each question carries 1 mark. (5Qx1M=5)

1. The reasons for automation of a certain production facility
   a) Improve productivity
   b) Improve efficiency
   c) Reduce MLT
   d) All of the above

2. The term that refers to the amount of output of a manufacturing company corresponding to its capacity
   a) Utilization
   b) Productivity
   c) MLT
   d) None of the above

3. Actual processing time is related to
   a) Tool handling time
   b) Work handling time
   c) Operation time
   d) All of the above

4. In which of the tool positioning system, the workhead locations are always defined with respect to the origin of the axis system.
   a) Absolute
   b) Incremental
   c) Axis
   d) None of the above

5. Some of the example(s) of mass production include producing
   a) Chalk pieces
   b) Nails
   c) Aircraft
   d) Both (a) and (b)

Part B [Thought Provoking Questions]

Answer all the Questions. Each question carries 5 marks. (3Qx5M=15)

6.A Company B has decided to convert conventional manufacturing with automation? What might be the reasons for the company to go for automation?

[5M] (CO NO 1) [Comprehension Level]

7.Adaptive control is used in a certain manufacturing company to improve productivity. Why should the company use adaptive control in manufacturing systems?

[5M] (CO NO 1) [Comprehension Level]

8.Predict the consequences of using a flexible manufacturing system in a production based Company.

[5M] (CO NO 1) [Comprehension Level]

Part C [Problem Solving Questions]

Answer the following question. The Question carries 10 marks. (1Q x 10M=10M)

9.Write a CNC part program for a rectangular slab 100mm x 100mm x 10mm so that a hole is to be drilled at the center with a dia of 25mm

[10M] (CO NO 1) [Application Level]

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BENGALURU

SCHOOL OF ENGINEERING

TEST – 2

Winter Semester: 2021-22
Course Code: MEC 310
Course Name: Flexible Manufacturing Systems
Program & Sem: B.Tech. & VI Sem

Date: 1st June 2022
Time: 01:30 PM to 02:30 PM
Max Marks: 30
Weightage: 15%

Instructions:

(iii) Read all the questions carefully and answer accordingly.
(iv) Use of calculator is permitted.

Part A [Memory Recall Questions]

Answer all the Questions. Each question carries ONE mark. (5Qx1M=5M)

1. Material handling equipment includes
   e) Transport equipment
   f) Tracking systems
   g) Storage systems
   h) All of the above

2. For fixed pathways, the material handling systems best suited is
   e) Conveyors
   f) Cranes
   g) AGVS
   h) None of the above

3. Some of the problems related to implementing GT
   e) Reviewing all the parts and grouping them
   f) Rearranging production machines
   g) Both (a) and (b)
   h) All of the above

4. Some of the ways to identify part families
   e) Visual inspection
   f) Coding
   g) Both (a) and (b)
   h) None of the above

5. The part manufacturing attributes pertaining to part classification and coding systems
   e) Material type
   f) Cutting tools
   g) Batch size
   h) All of the above

Part B [Thought Provoking Questions]

Answer all the Questions. Each question carries FIVE marks. (3Qx5M=15M)

6. A Company B has decided to convert conventional manufacturing with cellular manufacturing? What might be the reasons for the company to go for automation? [5M] (CO NO 2) [Comprehension Level]

7. A certain manufacturing based industry wants to implement group technology. In what ways the company benefits from using GT? [5M] (CO NO 2) [Comprehension Level]
8. ABC company wants to implement FMS in the industry. The company decides to use material handling equipment. What are the factors to be considered for selecting the equipment? [5M] (CO NO 3) [Comprehension Level]

Part C [Problem Solving Questions]

Answer the following question. Question carries TEN marks. (1Qx10M=10M)

9. For the machine component incidence matrix, 4M x 5C, form cells using single cluster linkage method. [10M] (CO NO 2) [Application Level]

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SCHOOL OF ENGINEERING

END TERM EXAMINATION

Winter Semester: 2021 - 22
Course Code: MEC 310
Course Name: Flexible Manufacturing Systems
Program & Sem: B. Tech. (Mechanical) – VI Sem

Date: 30th June 2022
Time: 9:30am to 12:30pm
Max Marks: 100
Weightage: 50%

Instructions:
(v) Read the all questions carefully and answer accordingly.

Part A [Memory Recall Questions]

Answer all the Questions. Each question carries TWO marks. (5Qx 2M= 10M)

1. What is the function of AGVS in FMS?
(C. O. No.1) [Knowledge]
2. Give any two objectives of using lean manufacturing.
(C. O. No.2) [Comprehension]
3. What does material handling refer to in flexible manufacturing?
(C. O. No.1) [Comprehension]
4. Name 2 reasons for implementing automation in industries.
(C. O. No.1) [Comprehension]
5. Name any two material handling systems used in automated industry?
(C. O. No.4)
[Comprehension]

Part B [Thought Provoking Questions]

Answer all the Questions. Each question carries TEN marks. (5Qx12M=60M)

6. How is an adaptive control used in flexible manufacturing system?
(C. O. No.1) [Comprehension]

7. What are the ways in which modular fixtures are used in automated industries?
(C. O. No.1) [Comprehension]

8. XYZ company wants to minimize waste in production processes. What are the ways in which it should start implementing? (C. O. No.5) [Comprehension]

9. A certain industry wants to start a manufacturing company. What are the ways in which it implements tool strategies? (C. O. No.1) [Comprehension]

10. How is a Kanban system used in reducing and controlling inventory? (C. O. No.5) [Comprehension]

Part C [Problem Solving Questions]

Answer both the Questions. Each question carries TEN marks. (2Qx15M=30M)

11. Using single linkage cluster analysis method, form cells

		Components				
		1	2	3	4	5
Machines	1	1	0	1	0	0
	2	0	1	1	0	1
	3	1	0	0	1	0
	4	0	0	1	0	1

(C. O. No.2) [Application]

12. A certain steel block of size 100 mmx 80mm x 50 mm needs to be drilled a hole of dia 15mm at the centre. Write a CNC part program for the same. (C. O. No.1) [Application]