GAIN MORE KNOWLEDGE
REACH GREATER HEIGHTS

ROLL NO.	

PRESIDENCY UNIVERSITY, BENGALURU
SCHOOL OF ENGINEERING

Max Marks: 40 | Max Time: 120 Mins | Weightage: 40 %

END TERM FINAL EXAMINATION

I Semester AY 2017-2018 Course: **MEC 310 Flexible Manufacturing Systems** 22 DEC 2017

Instructions:

i. Write legibly
ii. Answer the questions sequentially
iii. All questions are closed book only

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1. Why traditional production control procedures are not applicable to FMS environment directly? **[5M]**

2. Is there any advantage in forming *sub-groups* within part family while scheduling the jobs in FMS? Justify your answer. **[5M]**

3. When a switchover is made from traditional layout to cellular layout we use the same machines, operator and equipment's. But, still we realize the benefits of reduced WIP inventory, setup time, material handling etc. How is it possible to achieve just by changing the layout. **[8M]**

4. Do you think the concept of JIT can be applied in India? Why or why not justify your answer. **[5M]**

5. How lean manufacturing helps in reducing / minimizing waste? **[6M]**

6. What factors you consider while implementing FMS in an organization? **[6M]**

7. Mention Kanban rules. **[5M]**

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Max Marks: 40 Max Time: 60 Min Weightage: 20 %

TEST 2 (OPEN BOOK)

I Semester AY 2017-18 Course: **MEC 310 Flexible Manufacturing Systems** 28 OCT 2017

Instructions:

i. Except PPT slides students can use any study material
ii. Exchange of study material is not permitted
iii. Write legibly
iv. Scientific and non-programmable calculators are permitted
v. Answer the questions sequentially

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1. Assume that you have joined the company as Trainee Engineer in a Mechanical company. From the knowledge you have acquired in FMS course you want to suggest your management to change from conventional manufacturing to *cellular manufacturing. How are you going to convince your management that implementation of cellular manufacturing results in reduced (a) material handling (b) setup time (c) waiting time and (d) work-in-process inventory?*

15 M

2. Can we call smithy section or carpentry section or all the distinct areas where machines/equipment of the same type perform similar operations as a *cell*? Why or why not? Justify your answer.

15 M

3. Why *tool management* procedures used in conventional manufacturing are not applicable in FMS? Justify your answer.

10 M

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Max Marks: 40 Max Time: 60 Mins Weightage: 20 %

TEST 1

I Semester 2017-2018 Course: **MEC 310 Flexible Manufacturing Systems** 22 SEPT 2017

Instructions:

i. Write legibly
ii. Scientific and non-programmable calculators are permitted
iii. Answer the questions sequentially

Part A

(3Q x 3 M= 09 Marks)

1. What is Manufacturing Systems and why its knowledge is important?
2. Do you think Adaptive Control System can be applied successfully for all machining operations? Justify your answer.
3. What type of loads a typical material handling system has to carry in FMS?

Part B

(2 Q x 8 M= 16 Marks)

4. A skilled machinist, a turret lathe and universal milling machine is a good combination of flexibility. Having these facilities on the shop floor can we call it as Flexible Manufacturing? Justify.
5. When do you justify the use of machining centres?

Part C

(1 Q x 15 M= 15 Marks)

6. Write a manual CNC Milling Program for Machining the following component (machining the surface ABCD and drilling hole at point E). Reference point is shown. Assume first outside machining (surface ABCD) and hole making at point E is done. Assume tool moves in the direction of A-B-C-D-A. Make suitable assumptions.
   Make use of G Code and M Code table given.

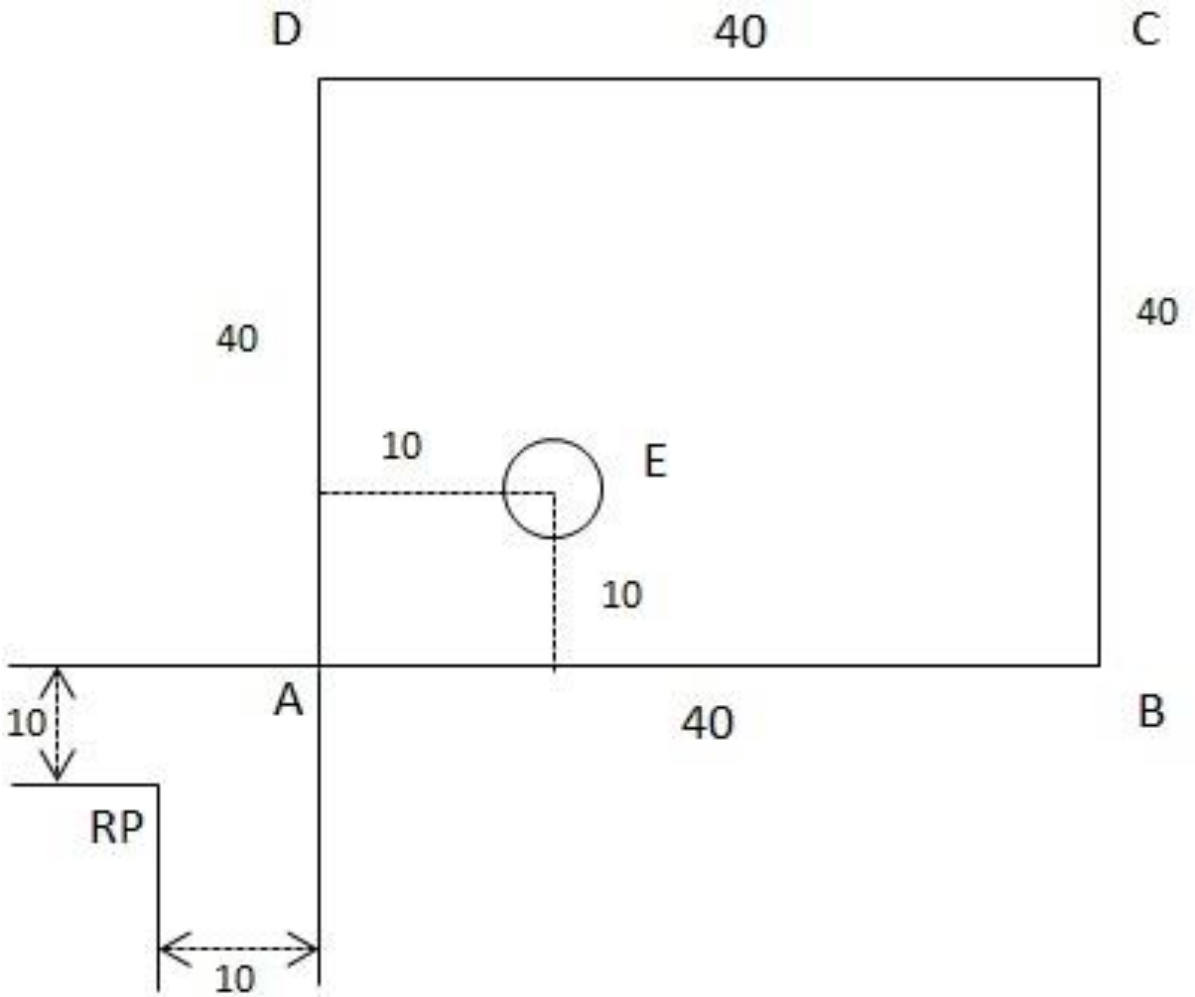

Figure 1 Figure for Question 6

Table of Some Important G and M codes

G Codes		M Codes	
G00	Rapid Transverse	M00	Program stop
G01	Linear Interpolation	M02	Program end
G02	Circular Interpolation, CW	M03	Spindle on clockwise
G03	Circular Interpolation, CCW	M04	Spindle on counterclockwise
G20/G70	Inch units	M05	Spindle stop
G21/G71	Metric Units	M06	Tool change
G90	Absolute positioning	M08	Coolant on
G91	Incremental positioning	M09	Coolant off
		M10	Clamps on
		M11	Clamps off
		M30	Program stop, reset to start