

# CBCS SCHEME

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Sixth Semester B.F. Degree Examination, Dec.2019/40.2020

## Computer Integrated Manufacturing

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions, choosing ONE full question from each module.

### Module-1

- 1 a. Discuss types of Automation relative to Production quantity and Product variety. (08 Marks)
- b. Discuss Markov Chain Analysis for a two-stage automated production line under several down time distribution. (08 Marks)

OR

- 2 a. Explain the following :
  - (i) Production capacity
  - (ii) Utilization and Availability
  - (iii) Manufacturing lead time
  - (iv) Work in Progress. (08 Marks)
- b. Explain the operation of walking beam transfer system. (08 Marks)

### Module-2

- 3 a. Explain the role of computers in Design Process. (08 Marks)
- b. A square with an edge length of 10 units is located on the origin. With one of the edge at an angle of  $30^\circ$  with the x-axis. Calculate the new position of the square if it is rotated about z-axis by an angle  $30^\circ$  in the clockwise direction. (08 Marks)

OR

- 4 a. Discuss retrieval-type process planning system. (08 Marks)
- b. With a block diagram, explain the inputs to MRP. (08 Marks)

### Module-3

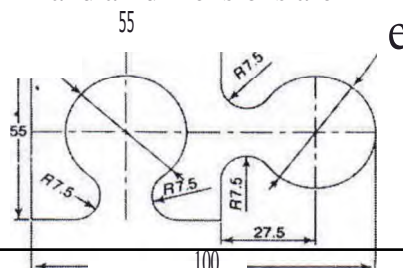
- 5 a. With a sketch, explain FMS layout configurations. (10 Marks)
- b. Explain the functions performed by FMS computer system. (06 Marks)

OR

- 6 a. Explain the types of AS/RS. (10 Marks)
- b. Explain minimum rational Work Elements and Precedence constraints. (06 Marks)

### Module-4

- 7 a. Explain the basic components of NC system. (08 Marks)
- b. Write the manual part programming for the milling components shown in Fig.Q7(b) consider spindle speed as 800 rpm and feed rate as 100 mm/min and absolute positioning. Assume plate thickness as 10 mm and all dimensions are in mm.



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**OR**

- 8 a. Discuss various methods used to programme robots to perform a given work cycle. (08 Marks)  
b. Discuss various application areas for industrial robots. (08 Marks)

**Module\_5**

- 9 a. With a neat sketch, explain photo polymerization process in additive manufacturing. (08 Marks)  
b. Discuss IOT applications in manufacturing. (04 Marks)  
c. Define Big data and Cloud computing. (04 Marks)

**OR**

- 10 a. With a neat sketch, explain Sheet Lamination Process in additive manufacturing. (08 Marks)  
b Explain Industry 4.0 application in Manufacturing. (08 Marks,....)

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