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15ME62

Sixth Semester B.E. Degree Examination, Dec.2019/Jan.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° with the x-axis. Calculate the new position of the square if it is rotated about z-axis by an angle 30° 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.

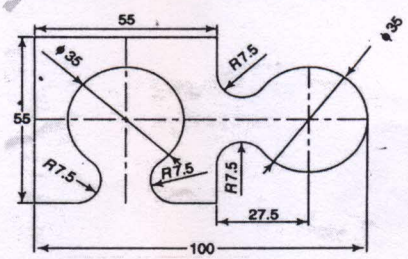

Fig.Q7(b) **(08 Marks)**

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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