Sixth Semester B.E. Degree Examination, Jan./Feb. 2021
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. List and explain different elements of CIM system. **(06 Marks)**
   b. Define automation and list the reasons for automation. **(04 Marks)**
   c. A production machine operates 80 hrs/week at full capacity its production rate is 20 unit/hr. During a certain week, the machine produced 1000 parts and was idle for the remaining period.
      i) Determine the production capacity of machine
      ii) Calculate the utilization of machine in a week.
      iii) Determine plant capacity when A = 90% and W = 80%. **(06 Marks)**

OR

2 a. What are the Transfer Mechanisms and explain any one type of transfer mechanism used to transfer the work part from one station to another station. **(08 Marks)**
   b. An 8 station rotary indexing machine operates. With an ideal cycle time of 20 sec. The frequency of line stop occurrence is 0.06. stop/cycle on an average. When a stop occurs it takes an average of 3 min. to repair. Determine the following:
      i)   Average Production Time, Tp   ii) Average Production Rate, RP
      iii) Line Efficiency, E   iv) Proportion of down time **(08 Marks)**

Module-2

3 a. List and explain any two functional areas of CAD System. **(08 Marks)**
   b. Explain the following with suitable examples.
      i) 2 D Transformations.   ii) Translation
      iii) Rotation and Scaling   iv) Concatenation **(08 Marks)**

OR

4 a. Using a block diagram or flow chart, explain the information flow in a retrieval – type CAPP System. **(08 Marks)**
   b. List the various functions performed by production planning and control department. **(04 Marks)**
   c. Draw the flow chart of the MRP System and explain in brief. **(04 Marks)**

Module-3

5 a. What is FMS and explain any one types of FMS. **(06 Marks)**
   b. List the benefits and applications of FMS. **(04 Marks)**
   c. Explain AS/RS material handling system, in FMS. **(06 Marks)**

OR

6 a. Explain different methods of line balancing. **(09 Marks)**
   b. Briefly explain computerized line balancing. **(07 Marks)**

Module-4

7 a. Sketch and explain basic components of CNC. **(06 Marks)**
   b. Differentiate between Manual Part Programming and Computer Assisted Part Programming. **(04 Marks)**
   c. Explain in brief, different types of statements used in APT language. **(06 Marks)**

1 of 2

OR

8 a. List and explain any one type of robot Configurations. (06 Marks)
b. What are end effectors, explain in brief different types of it in robot application. (05 Marks)
c. Explain different types of robot sensors. (05 Marks)

Module-5

9 a. List the advantages, disadvantages and applications of additive manufacturing. (06 Marks)
b. List and explain any one type of additive manufacturing process. (06 Marks)
c. Explain briefly hybrid manufacturing process. (04 Marks)

OR

10 a. Explain IOT applications in manufacturing. (05 Marks)
b. Explain Big-data and cloud computing. (06 Marks)
c. Explain, how IOT influence in industrial automation. (05 Marks)

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