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18MCM22

Second Semester M.Tech. Degree Examination, June/July 2019
Computer Control of Manufacturing Systems

Time: 3 hrs.   Max. Marks: 100

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

Module-1

1   a.   Explain the different functions of the computer in a CIM system.   **(10 Marks)**
    b.   List and explain different data files required to control the operation of the manufacturing system, and also explain the system reports.   **(10 Marks)**

OR

2   a.   Give the classification of NC systems, and explain incremental and absolute systems in detail. Also mention advantages associated with them.   **(10 Marks)**
    b.   What are the advantages of NC machine tool compared with other machining methods? And also mention disadvantages of NC systems.   **(10 Marks)**
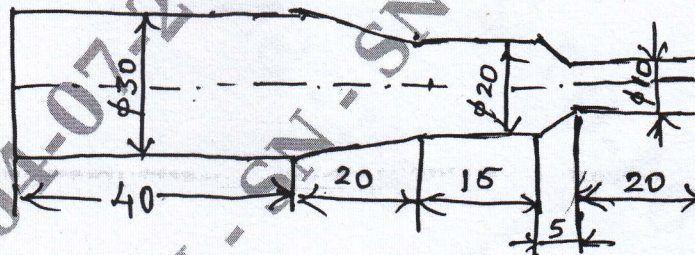
Module-2

3   a.   Sketch and explain the general structure of a hydraulic system for driving a NC machine.   **(10 Marks)**
    b.   Explain the working of following feedback devices: (i) Inductosyn (ii) Tachometer.   **(10 Marks)**

OR

4   a.   Write short notes on Automatic tool changers.   **(10 Marks)**
    b.   Explain design considerations of CNC machines for improving machining accuracy.   **(10 Marks)**

Module-3

5   a.   Illustrate canned cycles in a part program with the help of an example.   **(10 Marks)**
    b.   Write a manual part program for turning, for the given part as shown in Fig.Q5(b). Missing data may be suitably assumed.

all dimensions are in mm

Fig.Q5(b)   **(10 Marks)**

OR

6   a.   What are the principal functions of CNC? And explain any two functions in detail. **(10 Marks)**
    b.   Mention the advantages associated with CNC and DNC.   **(10 Marks)**

Module-4

7 a. What are the sources of variability in machining? And briefly explain two types of adaptive control. **(10 Marks)**

b. Explain the benefits of adaptive control machining. **(10 Marks)**

OR

8 a. Give the comparison of any five characteristics of 3 basic types of robot drive systems. **(10 Marks)**

b. Mention different application areas for industrial robots, and explain any two applications in detail. **(10 Marks)**

Module-5

9 a. With help of a block diagram, explain the structure of a material requirement planning system. **(10 Marks)**

b. Explain the functions of the shop floor control system. **(10 Marks)**

OR

10 a. Write short notes on Automated data collection systems. **(10 Marks)**

b. Give the overview of automatic identification methods. **(10 Marks)**

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