01162

Printed Pages—3 **ME—702**

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 4021 **Roll No.** | | | | | | | | | | |

B.Tech.

SEVENTH SEMESTER EXAMINATION, 2005-2006

COMPUTER AIDED MANUFACTURING

Time : 3 Hours *Total Marks : 100*

Note : *(i) Attempt **ALL SIX** questions. - There may be choices within questions.*

(ii) Q.1 carries 10 marks, other questions carry marks as indicated therein.

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(iii) Answer neatly and briefly. Assume suitably missing data, if any. Symbols/Abbreviations have the usual meaning.

(iv) Be precise in your answer.

1. Attempt ***all*** the following parts as directed : **(2x5=10)**

(a) Enlist advantages and limitations of Flexible Manufacturing System.

(b) Why Complete Automation is not acceptable directly to Indian Society ?

(c) What do you understand by Expert Systems and Intelligent Manufacturing ?

(d) Explain why CNC Lathe-beds are made of CAST IRON ?

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(e) Briefly write the purpose for which the followings are used :

(i) DDA

(ii) DAC

2. Answer any TWO of the following : **(9x2=18)**

(a) Write and explain methods for :

(i) improving accuracy, and

(ii) increasing productivity of CNC machine tools.

(b) What is Micro ? Explain some of the Micro's used in Automation.

(c) What is Group Technology ? How it is useful in FMS ?

3. Answer any TWO of the following : **(9x2=18)**

(a) Enlist and explain various statements used in Robot programming using VAL.

(b) Enlist and explain various motion-statements used in APT.

(c) Differentiate between CNC and DNC system.

4. Answer any TWO of the following : **(9x2=18)**

(a) Briefly explain and describe with neat sketches, the principle and working of :

(i) an encoder and (ii) Stepper motor.

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(b) Explain, with the help of diagram/table, the principle and working of a Circular Interpolator.

(c) Describe the automatic speed-control of DC motor with closed-loop feedback with tachometer and develop the formula for angular speed.

5. Write short notes on any THREE of the following : **(6x3=18)**

(a) Cellular Manufacturing Cell

(b) Artificial Intelligence

(c) CAD

(d) Direct Numerical Control and

(e) Robot Configurations in use

6. Answer any TWO of the following : **(9x2=18)**

(a) Compare Robots and CNC machines.

(b) Write, briefly, about various methods for robot-programming. Explain features of VAL robot-programming.

(c) Define and explain the following terms about a robot :

Accuracy, Work Volume, Resolution, Repeatability, Speed of movement and load carrying capacity.

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