PAPER ID-410885

Subject Code: NME031

Roll No: | | | | | | | | | | | | | |

B TECH
(SEM-VII) THEORY EXAMINATION 2021-22
COMPUTER AIDED MANUFACTURING

Time: 3 Hours ***Total Marks: 100***

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 10 = 20

a. Explain the different levels of automation.
b. Write the advantages and disadvantages of automation.
c. Discuss the advantages and limitations of NC systems.
d. Differentiate between NC and CNC machine.
e. Describe various feedback devices.
f. Differentiate between linear interpolation and circular interpolation.
g. What do you mean by manual part programming?
h. Differentiate between absolute and incremental coordinate system.
i. List the various industrial applications of robots.
j. Differentiate between in -line layout and loop layout types of FMS layouts.

SECTION B

2. Attempt any *three* of the following: 10 x 3 = 30

a. What is automation? Explain the need and importance of automation in industry.
b. List the different classification of NC machine tool systems. Also discuss the various types of NC motion control systems with the help of suitable diagrams.
c. Differentiate between CNC and DNC Machines with the help of diagram.
d. Write the advantages of computer Assisted part programming over manual part programming. Enlist and explain the various motion statements in APT.
e. What is CAPP? List and explain the different types of CAPP systems.

SECTION C

3. Attempt any *one* part of the following: 10 x 1 = 10

(a) What are the basic reasons for automation of a production system. Explain the various types of automation.
(b) What are the goals of automation? List and explain the different Automation Strategies.

4. Attempt any *one* part of the following: 10 x 1 = 10

(a) What is NC machine? Explain the basic components or elements of NC machine tool.
(b) Write the various applications of NC system. Discuss the various ways of increase productivity of NC machines.

5. Attempt any *one* part of the following: 10 x 1 = 10

(a) Explain the principle and working of Encoder and Counting Devices.

(b) What is the adaptive control? Explain the types of adaptive control with diagrams.

6. Attempt any *one* part of the following: 10 x 1 = 10

(a) What are preparatory and miscellaneous functions? Write and explain the main G and M codes used in manual part programming?

(b) Write the short notes on

(i) Canned cycles

(ii) Auxiliary statements in APT

(iii) Post processor statements in APT

7. Attempt any *one* part of the following: 10 x 1 = 10

(a) What is robot? Draw and explain the various robot configuration.

(b) Write a short notes on

(i) Group technology

(ii) Flexible manufacturing system