(h) What are the tasks performed by preparatory functions ?

(i) Compare absolute and incremental coordinate system.

(j) What is the format of a block in manual part programming ?   1.5×10=15

J-21-0061

B. Tech. EXAMINATION, 2021

Semester VI (CBCS)

COMPUTER AIDED DESIGN AND MANUFACTURING (CAD/CAM)

ME-601

Time : 2 Hours   *Maximum Marks : 60*

The candidates shall limit their answers precisely within 20 pages only (A4 size sheets/assignment sheets), no extra sheet allowed. The candidates should write only on one side of the page and the back side of the page should remain blank. Only blue ball pen is admissible.

Note : Attempt *Four* questions in all, selecting *one* question from any of the Sections A, B, C and D. Q. No. **9** is compulsory.

Section A

1. Explain the importance and necessity of CAD. Describe the hardware and software requirement of CAD.   15

2. What do you understand by coordinate system of a CAD tool ? Name the coordinate systems required in order to input, store and display model geometry and graphics. **15**

Section B

3. Find the equation of a closed (periodic) B-spline curve defined by four control points. **15**

4. Find the point (0.25, 90°) on the surface of revolution of a line segment with endpoints (1, 1, 0) and (5, 2, 0). This line segment is rotated about the X-axis. **15**

Section C

5. (a) Distinguish between solid modeling using CSG technique and B-rep technique. **8**

   (b) How is surface modelling different from wireframe and solid modelling ? Explain briefly with examples. **7**

6. (a) What are the basic components of NC system ? Explain each component in detail and draw figure wherever possible. **8**

   (b) Identify *four* situations in which manual labor is preferred over automation. Compare hard automation and soft automation. **7**

Section D

7. Briefly explain the guidelines for implementing group technology. Explain the advantages achieved by group technology and its limitations. **15**

8. What are the differences between retrieval and generative type of computer-aided process planning ? Which is better ? Explain your answer. Also mention salient features of variant type of CAPP system. **15**

(Compulsory Question)

9. (a) What are the CAD tools used in manufacturing system ?

   (b) What is traditional product cycle ?

   (c) What do you understand by customization of softwares ?

   (d) What are the various 3D viewing parameters ?

   (e) What are the various requirements from geometric model ?

   (f) What is the need of suing synthetic (free) curves in CAD software ?

   (g) Draw CSG tree for any simple object.