This question paper contains 3 printed pages.]

Your Roll No. .....

8467 **A**

B.Tech. (M)/IV

Paper EME–404 : ELECTIVE–I—CAD/CAM

Time : 3 *Hours* *Maximum Marks* : 70

(Write your Roll No. on the top immediately on receipt of this question paper.)

Answer ***five*** *questions, selecting at least* ***two*** *from Part A and* ***two*** *from Part B.*

Assume missing data if any

PART–A

1. (a) Differentiate between :

   (i) Absolute and incremental programming CNC machine

   (ii) CNC and DNC 8

   (b) Explain with examples the functioning of following used CNC :

   (i) Input devices

   (ii) Memory devices

   (iii) Storage devices 6

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2. (a) Explain the following with respect to geometric modelling :

   (i) Sweep *or* Extrusion

   (ii) Solid modelling 6

   (b) With example explain :

   (i) Bezier Curves

   (ii) B-Splines 8

3. (a) While using AUTOCAD for draftings explain the following functions :

   (i) Co-ordinate System

   (ii) Limits

   (iii) Layers

   (iv) Dimensioning 8

   (b) Write a note on 'Snap' and 'Ortho' in computer drafting system. 6

4. (a) Explain 'G' and 'M' codes used in NC part programming with four examples in each of them. 6

   (b) With examples explain *two* functions in each case used in drawing (i) Circle, (ii) Line, (iii) Point using APT language. 8

PART–B

5. (a) Define Robot. 2

   (b) Explain with neat sketch any *two* configuration of robots used in industry. 8

(c) With neat sketch explain any *two* types of end effectors used as :

(i) gripper (ii) tool in robots 4

6. (a) Define Group Technology 2

(b) Explain the following coding system structures used in group technology

(i) Hierarchical structure

(ii) Chain-type structure

(iii) Hybrid structure 6

(c) Sketch and explain

(i) Opitz Coding System

(ii) Layout of machinery with functional grouping as per product requirements 6

7. (a) Explain with block diagram.

(i) In-line FMS layout

(ii) FMS loop layout 8

(b) Explain various 'FMS Equipments' used in Flexible Manufacturing System. 6

8. Write short notes on :

(i) Buffer Storage

(ii) Parabolic interpolation

(iii) Unidirectional approach CNC System

(iv) Adoptive Control in CNC System 14

100