1078
B.E. (Mechanical Engineering)
Fifth Semester
MEC-502: Computer Aided Design and Manufacturing (CAD/CAM)

Time allowed: 3 Hours $\hspace{4cm}$ Max. Marks: 50

NOTE: *Attempt <u>five</u> questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit.*

x-x-x

I. Attempt the following:-

a) Define CAD and CAM.

b) What is concatenated transformation

c) Differentiate between parametric and non parametric curves.

d) What do you understand by adaptive control?

e) What are canned cycles? $\hspace{4cm}$ (5x2)

UNIT – I

II. a) Describe the importance and necessity of CAD in modem industries. Also list the advantages of CAD and CAM.

b) Differentiate between wire frame and solid modeling with examples. $\hspace{1cm}$ (5,5)

III. a) What do you mean by transformation? Explain 2 D translation .rotation, reflection and scaling.

b) A straight line with position vectors A (2.-3) and B (4.-6) is reflected about a line 5 x=0 and then rotated at an angle 90° clockwise about a point (2,-3). Find the position vector of the transformed tine.

IV. a) Differentiate between analytical and synthetic curves.

b) What is a Beizer curve? List the properties of Bcizer curve and write its parametric equation. Also differentiate between Beizer curve and Cubic spline curve. $\hspace{0.5cm}$ (3,7)

UNIT – II

V. a) What are the advantages of parametric representation of surfaces? Discuss various surface entities with neat sketch.

b) What is boundary representation (B-rep)-List the basic elements of B-rep and discuss the main building operations of boundary representation scheme. $\hspace{0.5cm}$ (5,5)

P.T.O.

VI. Develop the CSG tree for the given component and make a table summarizing the operations to be performed.
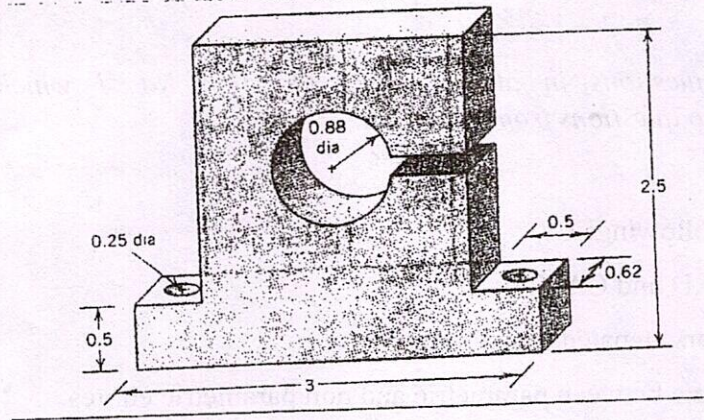
(10)

VII. a) What is a CNC m CNC differs from machine? Describe main constructional features of CNC. How CNC differs from DNC.

b) What is computer aided part programming and how it is different from manual part programming. (7,3)