

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

## GUJARAT TECHNOLOGICAL UNIVERSITY

ME - SEMESTER-II • EXAMINATION - SUMMER • 2015

**Subject Code: 2720822**

**Subject Name: CAD/CAM SYSTEMS**

**Date : 03/06/2015**

**Time: 2:30 Pm - 05:00 Pm**

**Total Marks : 70**

**Instructions:**

- 1. Attempt all questions.**
- 2. Make suitable assumptions wherever necessary.**
- 3. Figures to the right indicate full marks.**

**Q.1 (a)** What do you mean by Computer Aided Design (CAD)? List and explain the important parameters to be considered while selecting CAD systems. List the different application of CAD in mechanical engineering. (07)

**(b)** What are different software package used in CAD. Prepare the detailed specifications for a typical CAD workstation with latest hardware. (07)

**Q.2 (a)** What is a geometric transformations? Define and explain the following With respect to 2-D transformations (any three) : (i) Translation (ii) rotation (iii) scaling (iv) reflection (07)

**(b)** Briefly discuss about B-spline curve and Bezier curve and mention its advantages. (07)

**OR**

**(b)** Derive from fundamentals the parametric equation for the Hermite Cubic spline. Represent the equation in matrix form. Develop the parametric equations for i) Circle ii) Ellipse (07)

**Q.3 (a)** List various approaches used for creating solid models. Discuss about Constructive solid modelling (C-Rep) and Boundary representation (B-Rep) approaches. (07)

**(b)** What is feature based modelling? Discuss various steps involved in creation of models using features. (07)

**OR**

**Q.3 (a)** What do you mean by 2D and 3D wireframe modeling? Differentiate between wireframe modeling and solid modeling technique for CAD.. (07)

**(b)** Why graphic standard plays important roles in CAD. Enlist various graphic standards with full name. Describe the structure of an IGES file and compare IGES and PDES. (07)

**Q.4 (a)** Classify CNC machine tools on the basis of (1) Programming methods (2) Types of Controllers. Explain Axis Identification in any two CNC machines.. (07)

**(b)** Write a short note on Recirculating ball screw and nut in CNC machines. (07)

**OR**

**Q.4 (a)** Write a short note on automatic tool changers (ATC). (07)

**(b)** Differentiate DC shunt motor and 3 phase induction motor in terms of their working principle, applications, advantages and limitations. (07)

**Q.5 (a)** Differentiate Canned cycle, Loops and Subroutines. Explain Macros and Mirror image in part programming. (07)

**(b)** What are the different ways of defining circle, using geometry statements of APT language. (07)

**OR**

**Q.5 (a)** Explain the programming of CNC Machining centre with suitable example. (07)

**(b)** What are the auxiliary statements in APT language? Explain with suitable Examples any four auxiliary commands. (07)