

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – II • EXAMINATION – WINTER • 2013

Subject code: 1722805

Date: 08/12/2014

Subject Name: Computer Aided Design for Machine Component

TIME: 2:30 to 5:00 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) Distinguish between Conventional Design and Computer Aided Design system with CAD architecture. Explain application of Computers to the design process. 07

(b) Draw the flow chart and write Bresenham's algorithm for generation of circle. 07

Q.2 (a) Explain the following two dimensional geometric transformations in detail:
(1) Translation (2) Scaling. 07

(b) Explain the types of geometric modeling & represent a surface model of cube with its basic entity and edge type. 07

OR

(b) What is the significance of homogeneous coordinates in geometric transformations? 07

Q.3 (a) Define geometry and topology. Compare C-rep and B-rep approaches. 07

(b) Explain the types of wire frame modeling. 07

OR

Q.3 (a) Describe in detail the structure of an IGES file. 07

(b) What do you mean by 2D and 3D wireframe modeling? Differentiate between Wire-frame modeling and solid modeling technique for CAD. 07

Q.4 (a) What is graphic standard? Explain different CAD standards in detail with structure. 07

(b) Explain DDA algorithm for generation of line with flow chart. 07

OR

Q.4 (a) Write a program in C: Design of closed helical spring. 07

(b) Write various approaches used for creating solid models of an object, explain any one. 07

Q.5 (a) Discuss the followings with respect to optimization:

(i) Design variable (ii) Constraints (iii) Objective function 07

(b) Using C Language write a program for a connecting rod of an IC Engine. 07

OR

Q.5 (a) What do you mean by compatible and incompatible problem in optimum design? Explain. 07

(b) State various optimization techniques and explain Johnson method of optimum design. 07