

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject code: 1722805

Date: 04-01-2014

Subject Name: Computer Aided Design for Machine Component

Time: 10.30 am – 01.00 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) What do you mean by optimum design? Explain objectives of optimum design. Distinguish clearly between optimum design and engineering design problem solution. **07**

Q.2 (a) Explain wireframe modeling in detail. Compare it with solid modeling **07**

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

OR

(b) What are different types of geometric technique available? Describe the common facilities available in a solid modeling package. **07**

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

(b) Explain 3-D geometric transformations (any three) in detail. **07**

OR

Q.3 (a) Generate a Bezier curve using the following control points: (2, 0), (4, 3), (5,2), (4, -2), (5, -3) and (6, -2). **07**

(b) What is graphic standard? Explain different CAD standards in detail with structure. **07**

Q.4 (a) Explain DDA algorithm for generation of line with flow chart. **07**

(b) Define surface entities and derives the parametric equations of the four analytical surface models. **07**

OR

Q.4 (a) Define explicit, implicit, and parametric representation and what are their advantages? **07**

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

Q.5 (a) Write a program in C: Design of closed helical spring. **07**

(b) What do you mean by primary and subsidiary design equation? Explain with example **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**
