Seat No.:	Enrolment No.

## GUJARAT TECHNOLOGICAL UNIVERSITY ME SEMESTER II EXAMINATION – SUMMER 2017

Subject Code: 2720822 Date: 31/05/2017 **Subject Name: CAD/CAM Systems** Time: 02:30 PM to 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. (a) What is product life cycle? Compare traditional and the CAD/CAM based product 0.1 07 cycle. Explain how productivity increases by using CAD/CAM systems. (b) What are the challenges for engineers in the field of CAD/CAM? Explain the 07 important parameters to be considered while selecting a CAD system. **Q.2** (a) Outline the objectives of computer aided quality control. Discuss the importance of 07 integration of CAQC with CAD/CAM. What are the objectives and potential benefits of CIM? How does the CIM technique 07 reduce the lead time and enhance the quality of manufacturing of a product?  $\mathbf{OR}$ Explain briefly the 3 types of database models used in CIM environment. Discuss **07 (b)** the integration of CAD database and CMM operation. **Q.3** (a) How do you define a solid model? What is the best kind of modelling system? Explain 07 various solid modelling schemes with their applications and limitations. **(b)** Explain 3-D scaling, rotation, reflection and translation with suitable example. 07 **Q.3** (a) What is the importance of set theory in solid modeling? Explain about CSG 07 approach in solid modelling. What is geometric modelling? Explain various requirements for geometry model. Also **(b)** 07 describe Euler theory in detail. (a) Discuss the role of CAPP in CIM in detail. Differentiate generative and retrieval type 0.4 07 CAPP systems. With the help of line diagrams explain 4 different machining configurations for 07 **(b)** i) Machining centers ii) Turning centers What is CMM? What are the different types of CMM? Explain its working principle. **Q.4** 07 Explain about i) machine vision ii) photogrammetry iii) electrical field techniques **(b)** 07 and iv) ultrasonic techniques. Write short note on "FMS; its control system & different types of material **Q.5 07** (a) andling and storage systems". Write short note on "Tool wear monitoring system and tool breakage monitoring **(b)** 07 system" OR Explain selection criteria of CNC machining centre. Describe **Q.5** 07

ardware

configuration of a modern CNC system.