Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME – SEMESTER II (NEW) – • EXAMINATION – SUMMER 2016

Subject Code: 2720822 **Date: 02/06/2016**

Subject Name: CAD/CAM SYSTEMS

Time:10:30 am to 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)	Justify the role of CAD-CAM in present day competitive manufacturing that has emerged out in Indian industries.	07
	(b)	Discuss the role of CAM in precision sheet metal industries along with applications and limitations.	07
Q.2	(a)	How do you select a CNC machining centre for machining the following components? (i) Aircraft fuselage section (ii) Compressor rotor. Describe hardware configuration of a modern CNC system.	07
	(b)	Give the difference in part programming to be considered between CNC turning centers and CNC machining centers. Describe with an example Looping-Jumping and Subroutine in FANUC controls.	07
		OR	
	(b)	Explain subroutines, do loops, canned cycles, parametric sub routines and Macros used in CNC programming with suitable example. .	07
Q.3	(a)	Discuss the various tool supply concepts used in the FMS context. While bringing out the specific advantages and applications, mention the most widely practiced principle in the industry.	07
	(b)	Write short note on “Coordinate Measuring Machine”	07
		OR	
Q.3	(a)	Write short note on “Tool wear monitoring system and tool breakage monitoring system”	07
	(b)	Sketch a simple FMS; discuss its control system & different types of material handling and storage systems.	07
Q.4	(a)	Draw a product life cycle diagram along with its various phases. Differentiate synthesis and analysis in context of product design with explanation of CAD tools used in each phase.	07
	(b)	Write a detailed note on wire-frame modeling.	07
		OR	
Q.4	(a)	Enlist the design-related tasks performed by a modern CAD system. Explain any two of them.	07
	(b)	Explain geometry and topology with regard to solid modeling. Write any three advantages of solid modeling. Why is surface modeling still used sometimes?	07
Q.5	(a)	Derive the equation of Bezier curve with five control points. Explain various properties of Bezier curve.	07
	(b)	Explain Hermite bi-cubic surface representation using a neat sketch.	07
		OR	
Q.5	(a)	Explain the concept of three Boolean operations used in solid modeling. Give neat sketches showing effect of these operators on any two basic primitives. Distinguish between CSG and B-rep models.	07

(b) List various data exchange formats used in high end CAD Softwares. What is abbreviation of IGES? Describe various sections of IGES file format. 07