Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject Code: 2723009 **Date: 25/05/2016**

Subject Name: ADVANCE PROCESS CNTROL

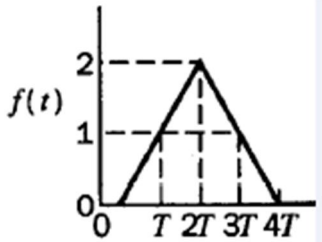
Time:10:30 am to 01:00 pm **Total Marks: 70**

Instructions:

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

1		Explain feedforward control system with example and compare it with feedback control system.	14
			7
2	A	Explain feedback control systems with large dead time. How classical feedback control systems are modified for dead time compensationð Explain.	7
	B	Find the inversion of $0.15\ Z/(Z^2+Z+1)$ by method of long division method	7
		OR	
	B	Find inversion of $0.15\ Z/(Z^2+Z+1)$ by method of partial fractions	7
3	A	Derive Z- transform for impulse input function with magnitude A	7
	B	Distinguish open loop and closed loop control systems	7
		OR	
	A	Discuss split range control system with suitable example	7
	B	Determine the response equation of open-loop control system for the data given below, Transfer function-- $G(s) = 1/(\acute{U}s+1)$, $G(z) = \frac{(1/\acute{U})\ z}{z-e^{-T/\acute{U}}}$	7

Triangular wave Signal entering the system



Assume suitable values of T and Ú

4	A	Short note on-----Degrees of freedom and the number of controlled and manipulated variables for the MIMO systems	7
	B	Explain- General conditions for stability for discrete systems.	7
		OR	
	A	Determine the number of controlled and manipulated variables for flash drum	7
	B	Explain ï Effect of intermediate storage tanks on process control- A case study	7
5		Attempt any two	14
	A	Classify advance control systems	
	B	Short note onð Types of inputs and their responses	
	C	Write a short note on Hold elements	