GUJARAT TECHNOLOGICAL UNIVERSITY
M.E Sem-I Examination January 2010

Subject code: 710303   **Subject Name: PID Controller**
Date: 25 / 01 / 2010   **Time:12.00-2.30pm**
Total Marks: 60

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

Q.1	**(a)**	Write short note on The Future of PID Controller.	**08**
	(b)	Give the requirements for Feed Forward Controller and Cascade Controller.	**04**
Q.2	**(a)**	Write short note on λ-Tuning method	**06**
	(b)	What do you mean by Bumpless transfer between manual and automatic? Explain in detail.	**06**
		OR	
	(b)	Explain how PI Controller of a system with oscillatory modes is designed.	**06**
Q.3	**(a)**	Write Short note on Digital Implementation of PID Controller.	**08**
	(b)	Explain ratio control strategy using some physical example.	**04**
		OR	
Q.3	**(a)**	Explain automatic tuning approaches that based on explicit derivation of process model.	**08**
	(b)	Explain the Block diagram of a system that combines one feedback and two feed forward controller .	**04**
Q.4	**(a)**	Explain the development of Relay-enhanced multi loop PI Controllers for two input two output (TITO) Process.	**10**
	(b)	What do you mean by dead time compensation?	**02**
		OR	
Q.4	**(a)**	What do you mean by interacting loops? Explain with the example of two motors that drive the same load.	**08**
	(b)	Give the design steps of PID controller for RC low pass filter where R = 100 Ω and C =10 μF	**04**
Q.5	**(a)**	Write short note on Dominant pole design.	**10**
	(b)	Where relay based method of tuning PID controller is not applicable?	**02**
		OR	
Q.5	**(a)**	Draw and explain the Block diagram of indirect adaptive controller.	**06**
	(b)	Can you implement feed forward control strategy in SISO Industrial Plant Emulator? If yes then how?.	**06**

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