Reg.No. _____

Karunya UNIVERSITY

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

End Semester Examination – Nov/Dec – 2016

Code : 14EI3015

Sub. Name : SYSTEM IDENTIFICATION AND ADAPTIVE CONTROL

Semester : 2016-17 ODD

Duration : 3hrs

Max. marks : 100

ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)

Q. No.	Sub Div.	Questions	Course Outcome	Marks
1.	a.	Write short notes on: Sine wave testing	CO1	7
	b.	Frequency analysis by the correlation method	CO1	7
	c.	Weighting Function	CO1	6
		(OR)		
2.	a.	Narrate the sources and causes for the existence of disturbances.	CO1	5
	b.	What is meant by pseudolinear regression ?	CO1	5
	c.	Explain the modeling concept involved in noise representation and time-invariant kalman filter.	CO1	10
3.	a.	Discuss the various types of models and their criterion of classification.	CO1	10
	b.	Obtain the state space model of a dc servo motor.	CO1	10
		(OR)		
4.	a.	What are fuzzy models? Illustrate with an example.(5)	CO1	5
	b.	Write the principle of Least square Estimation.(5)	CO2	5
	c.	State and prove least square estimation theorem.(10)	CO2	10
5.	a.	Differentiate between static and dynamic plant transfer function.	CO2	5
	b.	Compare the features of inverse feed forward and feedback neural control with a block diagram.	CO2	5
	c.	Explain the concept of back propagation algorithm used in Neural Network for system validation	CO2	10
		(OR)		
6.	a.	List the statistical properties of Least Squares estimation	CO2	5
	b.	Derive the recursive least square estimation algorithm.	CO2	10
	c.	State the Recursive Least Square Estimation	CO2	5
7.	a.	Explain the Specialized on-line learning control architecture for static and dynamic plant.	CO3	10
	b.	Draw the various Neural Network Configurations applied for plant Identification and compare its features.	CO3	10
		(OR)		

8.	a.	Compare the features of inverse feed forward control and feedback control with a block diagram.	CO3	10
	b.	Explain the concept of back propagation algorithm used in Neural Network for system Identification.	CO3	10
		Compulsory:		
9.	a.	Draw the general block diagram of adaptive control system.	CO3	2
	b.	Discuss how adaptive control system is used in Heat Exchanger.	CO3	10
	c.	Explain the concept of self Tuning Regulator Adaptive Control System.	CO3	8

ALL THE BEST