



End Semester Examination – Nov/Dec – 2016

Code : 14EI2017
Sub. Name : PROCESS DYNAMICS AND 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.	With neat block diagram, explain the components and different types of variables associated with process control.	CO1	15
	b.	Mention the need for process control.	CO1	5
(OR)				
2.	a.	Classify higher order systems. What is meant by non-interacting systems and derive the transfer function for non-interacting liquid system.	CO1	1
	b.	Bring out the difference between continuous and batch process.	CO1	5
3.	a.	Write about the on-off controller with its neutral zone and applications.	CO1	1
	b.	Discuss the characteristics and applications of Integral controller.	CO2	1
(OR)				
4.	a.	Given the error values plot a graph of a PI controller output as a function of time $K_p=5$, $K_i=1.0s^{-1}$, $P_i(0)=20\%$	CO2	15
	b.	Name the different types of control modes.	CO2	5
5.	a.	Discuss in detail about the controller tuning using Ziegler-Nicholas method.	CO2	10
	b.	Explain the dynamic behavior of closed loop response of the liquid level in a tank.	CO2	10
(OR)				
6.	a.	Discuss in detail about Control Valve sizing.	CO3	10
	b.	With neat diagram, explain the operation of direct action type spring and diaphragm actuators.	CO3	10
7.	a.	Draw neatly and explain the generalized block diagram of ratio control scheme.	CO3	12
	b.	Bring out the differences between feed forward and feedback control.	CO3	8

(OR)				
8.	a.	Write briefly about selection and tuning of controllers for cascade control scheme.	CO3	10
	b.	Mention the advantages of cascade control scheme.	CO3	10
<u>Compulsory:</u>				
9.	a.	With a neat diagram, explain the operation of evaporators.	CO3	20

ALL THE BEST