Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

SIXTH SEMESTER B.TECH DEGREE EXAMINATION**(R&S)**, MAY 2019

Course Code: AE302

Course Name: PROCESS CONTROL

Max. Marks: 100 Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks. Marks

1	a)	With suitable example explain degrees of freedom	(10)
	b)	Enumerate the various incentives for process control.	(5)
2	a)	Explain the following terms i)Steady state gain ii)Process time constant	(5)
	b)	Analyse the following control loops i)Liquid level control ii)Temperature control	(10)
3	a)	What do you mean by self-regulating system and non-self-regulating system? Explain.	(8)
	b)	Explain how an equal percentage valve compensates for non-linearity in the loop	(7)

PART B

Answer any two full questions, each carries 15 marks.

4	a)	What are the various elements of a feedback control loop?	(10)
	b)	Distinguish servo control from regulator control.	(5)
5	a)	Explain Cascade control with example	(10)
	b)	Describe Ziegler Nichols method for controller tuning?	(5)
6	a)	What is feed forward control? Explain	(9)
	b)	Explain the various time integral performance criteria	(6)

PART C

Answer any two full questions, each carries 20 marks.

7	a)	What is the principle of model predictive control? Explain	(10)
	b)	Explain the classification of artificial neural network?	(5)
	c)	Distinguish a crisp set from fuzzy set	(5)

8	a)	Illustrate process interaction in a multivariable system	(12)
	b)	Explain the following with reference to a multivariable system i)Operating window ii) Controllability	(8)
9	a)	Explain step analysis method to find time constants and dead time for a second order model	(10)
	b)	How relative gain array can be used for loop pairing in a multivariable system	(10)

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