

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Scheme for Valuation/Answer Key

Scheme of evaluation (marks in brackets) and answers of problems/key

SEVENTH SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2018

Course Code: EC409

Course Name: CONTROL SYSTEMS

PART A

Answer any two full questions, each carries 15 marks.

		Marks
1	a Signal flow graph	(5)
	b Steps + Transfer function (Free body diagram not required)	(10)
2	a Equation-2 marks, Explanation-3 marks	(5)
	b Derivation + Final result	(5)
	c Derivation + Final result	(5)
3	a Block diagram reduction-6 marks, Signal flow graph + Verification-4 marks	(10)
	b Evaluation of 3 parameters(K_p , K_v , K_a)	(5)

PART B

Answer any two full questions, each carries 15marks.

4	a Steps +Answer =5 marks	(5)
	b Steps-6 marks , Plot-4 marks	(10)
5	a Comparisons-5 marks	(5)
	b Steps-4 marks, Plot-4 marks Gain margin-1 mark, Phase margin-1mark	(10)
6	a Steps-4 marks Plot-2 marks, $K=1$ mark, Stability-1 mark	(8)
	b Design procedures-7 marks	(7)

PART C

Answer any two full questions, each carries 20 marks.

7	a Those who have tried to attend may be given full marks	(5)
	b Definition-2 marks, derivation-5 marks	(7)
	c Steps-5 marks, state equation-2 marks, Output equation-1 mark	(8)
8	a Both theorems-2.5 marks each	(5)
	b Derivation-7 marks	(7)
	c Steps-6 marks, matrix-2 marks	(8)
9	a Loop and node equations-3 marks, state equations-3 marks, final state space model-4 marks	(10)
	b Steps-8 marks, Final answer-2 marks	(10)
