Vivekananda College of Engineering & Technology, Puttur [A Unit of Vivekananda Vidyavardhaka Sangha Puttur ®]

Affiliated to VTU, Belagavi & Approved by AICTE New Delhi

CRM08

Rev 1.10

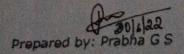
30/06/2022

CONTINUOUS INTERNAL EVALUATION- 1

Dept: EC	Sem / Div:IV	Sub: Control Systems	S Code: 18EC43		
Date:05-07-2022	Time: 9:30-11:00 am	Max Marks: 50	Elective:N		

Note: Answer any 2 full questions, choosing one full question from each part.

QN	Questions	Marks	RBT	COs
	PARTA			001
a Draw the general example.	al block diagram of automatic control system and explain with	7		COI
b For the mechani	ical system shown in fig . Draw the mechanical network ,write equation and Draw the electrical network based on Force voltage analogy.	9	L3	COI
	TX2			
c Write the torque equation of the rotational system shown in fig . Find the transfer function $\theta 2(s)/T(s)$		9	L3	COI
	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8			14
11	OR	NA ALLEN		
a Find Eo(s)/Ei(s)	for the system given in Fig. 2.b R ₁ R ₂	9	L3	COI
1.				COI
b Define Analogo their transfer fur	ous system. Show that the two systems are analogous by comparations.	ring 9	L3	COI
	TO TX			
A Landau Control of the Control of t	iagram shown in figure, determine the transfer function	7	L3	CC



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CONTINUOUS INTERNAL EVALUATION- 1

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PART B	9	L3	CO2
3 a For the block diagram shown in figure, determine the transfer function C(s)/R(s) using block diagram reduction technique.		23	002
H ₁ + H ₂			
b Draw the mechanical network and write the differential equation for the system in Fig 3.a. Draw the electrical network based on Force voltage and Force current analogy.	10	L3	CO1
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$			
c What is block diagram representation. Derive the transfer function of a closed loop system.	6	L2	COI
OR			
a Define signal flow graph and list the properties of the signal flow graph.	7	L2	CO2
b The performance equations of a controlled system are given by the following set of linear algebraic equations. Draw the block diagram and determine C(s)/R(s). E1(s)=R(s)-H3(s)C(s), E2(s)=E1(s)-H1(s)E4(s), E3(s)=G1(s)E2(s)-H2(s)C(s), E4(s)=G2(s)E3(s), C(s)=G3(s)E4(s).	10	L3	CO2
c For the rotational system shown in figure, Draw the electrical network based on T-I analogy. $ \frac{K_1}{H_1} = \frac{J_1}{H_2} + \frac{J_3}{H_2} + \frac{J_2}{H_3} + \frac{J_2}{H_3} + \frac{J_3}{H_2} + \frac{J_3}{H_3} + \frac{J_4}{H_3} + \frac$	8	L3	COl

Prepared by: Prabha G S

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