JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2025

B.Tech-III Semester (ECE)

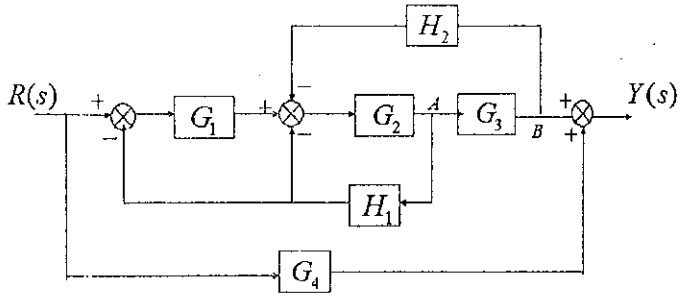
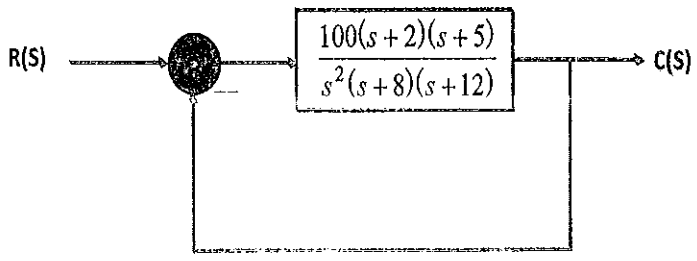
COURSE CODE (CREDITS): 23B11EC411 (3) MAX. MARKS: 15

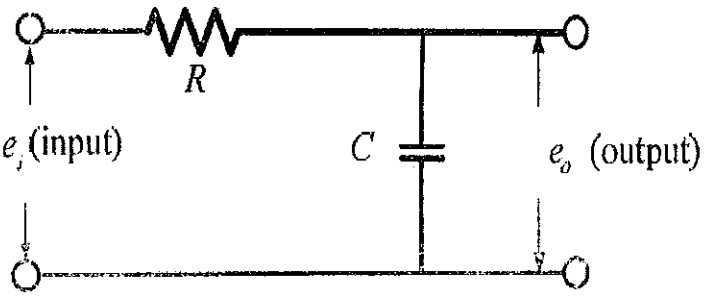
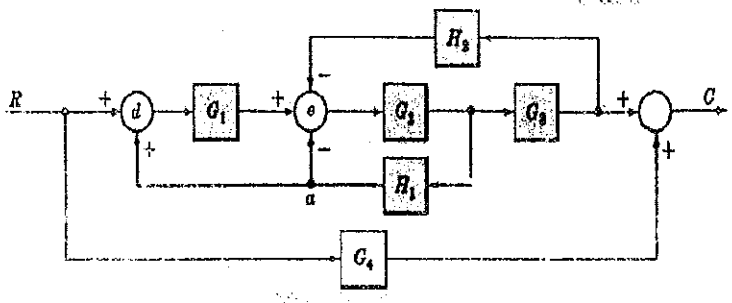
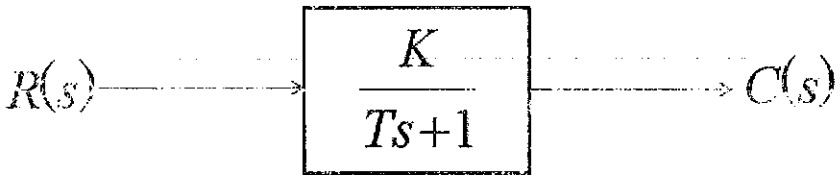
COURSE NAME: AUTOMATIC CONTROL SYSTEMS

COURSE INSTRUCTORS: Dr Rajiv Kumar MAX. TIME: 1 Hour

Note: *(a) All questions are compulsory.*

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

Q.No	Question	CO	Marks
Q1	Find the transfer function of the following block diagrams using block diagram reduction technique 	CO-1	3
Q2	A thermometer requires 1 min to indicate 98% of the response to a step input. Assuming the thermometer to be a first-order system, find the time constant.	CO-2	3
Q3	For the system shown in figure below, find the expected steady state errors for the standard step and ramp inputs. 	CO-2	3

Q4	a) Calculate the transfer function, $\frac{E_o(s)}{E_i(s)}$ of following electrical system:  b) Convert the following block diagram into a signal flow graph  	CO-1	3
Q5	Plot the step and impulse response of the following system:  Where; K=10 and T=1.5s	CO-2	3