JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- 2024

B.Tech-IV Semester (ECE)

COURSE CODE (CREDITS): 23B11EC411 MAX. MARKS: 25

COURSE NAME: AUTOMATIC CONTROL SYSTEMS

COURSE INSTRUCTORS: Dr Rajiv Kumar MAX. TIME: 1 Hour 30 Minutes

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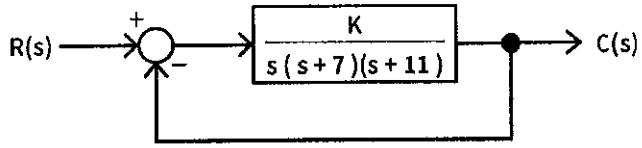
Note: *(a) All questions are compulsory.*

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

Q.No	Question	CO	Marks
Q-1	a) Draw the Root locus of the unity feedback systems with following G(s) $\frac{K}{(S+1)(S+2)}$ a) Draw the Root locus of the unity feedback systems with following $G(S) = \frac{K}{S(S+1)(S+2)}$	CO-3	2+3=5
Q-2	a) What do you understand by the bounded-input and bounded output stability? b) Justify, giving of explanation that impulse response of stable system converges c) What are its limitations of Routh-Hurwitz criterion of stability?	CO-2	1+2+2 =5
Q-3	 Check the stability of this system using Routh-Hurwitz criterion	CO-2	5
Q-4	a) Explain the effect of parameter variation on the system performance. b) Derive the expression of sensitivity S_G^T ; where $T(s) = \frac{G(s)}{1+G(s)H(s)}$	CO-3	2+3=5
Q-5	a) For a second order under damped system define the terms: Delay-Time, Rise-Time, Peak-Time and Peak Overshoot b) Explain how the peak-overshoot is depending on damping ratio.	CO-2	4+1=5