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| **logo** | **CHALAPATHI INSTITUTE OF ENGINEERING AND TECHNOLOGY**  **Chalapathi Nagar, Lam, Guntur-34** |

**DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING**

**Subject: – LINEAR CONTROL SYSTEMS**

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| Faculty Name: K.MURALI KRISHNA RAJU | Year / Sem: B.Tech in ECE 3/1 – A | Academic Year: 2019-20 |

**Assignment –II**

1. Explain the correlation between time and frequencies responses
2. Consider a unity feedback system having an open loop transfer function  sketch the polar plot and determine the value of K so that

i) Gain margin is 20db ii) phase margin is 

1. Given find K .so that the system is stable with

i) Gain margin is 6db

ii) Phase margin is 

1. Construct Nyquist plot for a system whose open loop transfer function is given by find the range of K for stability
2. Sketch the bode plot for the following transfer function and deter mime phase margin and gain margin 
3. Derive the expressions for Resonant Peak, Resonant Frequency, Bandwidth and phase margin.

**Signature of the faculty**

**CHALAPATHI INSTITUTE OF ENGINEERING AND TECHNOLOGY**

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| Class : **III/IV B.Tech** | **II Mid-term Examinations** | Date : 21-11-19 |
| Section **: ECE-A** | **LINEAR CONTROL SYSTEMS** | Time : **90 Min** |
| Sub Code : **EC 311** |  | Max.Marks :**18** |

**SECTION-A**

**Answer All Questions: (6 x 1 = 6 M)**

1. a) What is the frequency response?

b) Define bandwidth

c) Define phase margin.

d) What is Bodeplot?

e) Define corner frequency.

f) What is minimum phase system?

**SECTION-B**

1. sketch the bode plot of the transfer function given by  **(6 M)**

**(OR)**

1. Sketch the polar plot for the transfer function  **(6M)**

**SECTION-C**

1. Sketch the root locus plot of the control system with loop transfer function

. **(6M)**

**(OR)**

1. Check whether the system represented by  is controllable (or) not. **(6 M)**

**Signature of the faculty**