ADAMAS UNIVERSITY
PURSUE EXCELLENCE

SCHOOL OF ENGINEERING AND TECHNOLOGY

MID-SEMESTER EXAMINATION (THEORY)

Name of the Program: B.TECH Semester: VII
Stream: Computer Science Engineering
PAPER TITLE: Control System PAPER CODE: EEC43115
Maximum Marks: 20 Time duration: 2 hours
Total No of questions: 5 Total No of Pages: 02

(Any other information required for the student may be mentioned here)

Answer all the Groups

Group A

(Answer all the questions)

1×5=5

1.

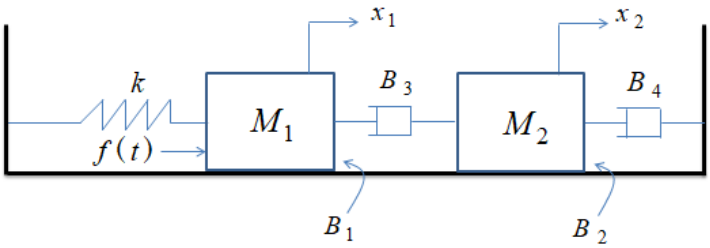
a. What is transfer function? [CO:1]
b. What are the advantages of close loop system? [CO:2]
c. Explains with example about open loop system. [CO:4]
d. Define pole and zero of a transfer function. [CO:1]
e. What is MIMO system? [CO:2]

Group B

(Answer any three questions)

5×3=15

2. Analyze the following system to obtain the transfer function: [CO:3]



3. Construct a signal flow graph by considering the following algebraic equations: [CO:4]

$y_2 = a_{12}\, y_1 + a_{42}\, y_4$
$y_3 = a_{23}\, y_2 + a_{53}\, y_5$
$y_4 = a_{34}\, y_3$
$y_5 = a_{45}\, y_4 + a_{35}\, y_3$
$y_6 = a_{56}\, y_5$

4. Determine the error coefficient and static error for unity and non-unity feedback system [CO: 4]

$$G(s) = \frac{1}{s(s+1)(s+10)}$$

$$H(s) = (s+2)$$

5. A certain feedback system is described by the following transfer function [CO: 3]

$$G(s) = \frac{16}{s^2+4s+16}, \quad H(s) = ks$$

The damping factor of the system is 0.8. Determine the overshoot of the system.