



**MEHRAN UNIVERSITY OF ENGINEERING &
TECHNOLOGY**



**B.E ELECTRONIC ENGINEERING
CLASS TEST#01 (12 ES SEC-I & SEC-II)**

Subject: Feedback Control Systems

ID.NO. _____

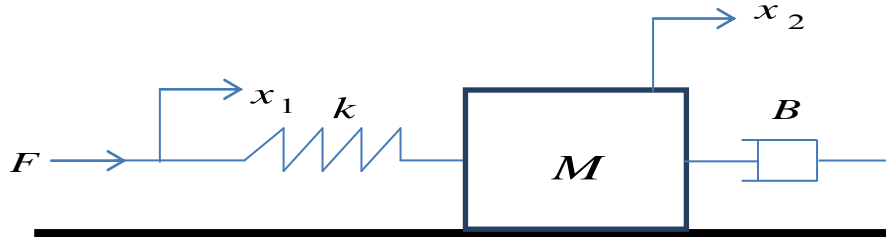
DATE: 24-02-2014

TIME ALLOWED: 40 Minutes

MAX.MARKS: 10

MARKS OBTAINED

1. Draw the block diagram of mechanical translational system given in following figure and use block diagram simplification rules to obtain the transfer function. [02 Marks]



2. Give three reasons for using feedback control system and at least one reason for not using them. [01 Mark]

3. Physically, what happens to a system that is unstable (give an example)? [01 Mark]

4. Negative feedback is invariably preferred in closed loop systems because [0.5 Mark]

- A. it reduces the gain B. it reduces the design cost
C. it require less amplifiers D. it increases the reliability

5. Servomechanism is a term specifically used for those feedback control systems in which [0.5 Mark]

- A. Desired output and actual output are continuously compared
B. Output always vary linearly with input
C. Output is always a mechanical quantity
D. Input is always electrical

6. (a) Apply Mason's Gain formula to calculate transfer function $\left(\frac{X_d(s)}{R(s)}\right)$ for the signal flow graph given in following figure. [2.5 Marks]
- (b) Convert the given signal flow graph into an equivalent block diagram and use block diagram reduction rules to verify the transfer function obtained in part (a). [2.5 Marks]

