Enrolment No._____

HASMUKH GOSWAMI COLLEGE OF ENGINEERING, VAHELAL

MID SEMESTER EXAMINATION, SEPTEMBER-2016

Subject Code: 2151908 **Date: 27-09-2016**

Subject Name: Control Engineering **Sem:5TH (Mech)**

Time: 10:00 TO 10:50 **Total Marks: 20**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

QUE.1	**(A)**	State and explain conditions with example for a system to be Linear system.	**3**
	(B)	What is Analogous system? Establish force-current and force-voltage analogy.	**3**
QUE.2	**(A)**	Derive the equation for transfer function of translational and rotational mechanical system.	**3**
	(B)	Derive the closed loop transfer function using block diagram reduction technique for the system shown in fig.1	**4**
		OR	
	(B)	State and explain Mason's gain formula regarding signal flow graph technique.	**4**
QUE.3	**(A)**	Define the following (Any three): (i) Rise time (ii) Peak time (iii)Maximum overshoot (iv) Setting time	**3**
	(B)	State and explain Routh's stability criterion. Also enlist the limitations of the same.	**4**
		OR	
	(A)	Explain standard Test input signals.	**3**
	(B)	Discuss stepwise procedure of plotting the root-locus for a given open-loop transfer function.	**4**

********** ALL THE BEST **********