GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VIII (NEW) - EXAMINATION – SUMMER 2018

Subject Code: 2180104   **Date: 02/05/2018**
Subject Name: Aircraft Control and Navigation(Department Elective III)
Time: 10:30 AM to 01:00 PM   **Total Marks: 70**

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

			MARKS
Q.1	**(a)**	Write a short note on Inertial cross coupling.	**03**
	(b)	Explain Displacement autopilot with block diagram.	**04**
	(c)	Derive an Equation of Angular motion of an Aircraft.	**07**
Q.2	**(a)**	Write Short note on Dutch roll.	**03**
	(b)	Explain Basic 3-axis Autopilot system in with suitable diagram.	**04**
	(c)	Explain Altitude and Mach hold Control system with suitable block diagram.	**07**
		OR	
	(c)	Explain Transient Response of an Aircraft.	**07**
Q.3	**(a)**	Write a Short note on surveillance.	**03**
	(b)	Explain Dead Reckoning in brief.	**04**
	(c)	Explain ILS/MLS coupled autopilot system in brief.	**07**
		OR	
Q.3	**(a)**	Explain Duplex Control System with block diagram.	**03**
	(b)	Explain the assumptions which are made to derive an equation of motion of Aircraft.	**04**
	(c)	Explain Yaw Orientation Control system with suitable block diagram.	**07**
Q.4	**(a)**	Write a short note on Celestial navigation system.	**03**
	(b)	Explain Inner loop and outer loop control system with block diagram.	**04**
	(c)	Derive Linear equation of motion for Aircraft.	**07**
		OR	
Q.4	**(a)**	Explain effect of high roll rate on aircraft's stability.	**03**
	(b)	Explain Lateral Autopilot system with suitable block diagram.	**04**
	(c)	Define Navigation. Explain categories of navigation in brief.	**07**
Q.5	**(a)**	Write a short note on Glide Slope Coupler.	**03**
	(b)	Derive equation for Turn Compensation with suitable sketch.	**04**
	(c)	Explain Terrestrial Radio Navigation System in brief.	**07**
		OR	
Q.5	**(a)**	Explain why control and Navigation systems are necessary for aircraft.	**03**
	(b)	Explain Acceleration Control System with block diagram.	**04**
	(c)	Explain Euler angle system to establish relations between Inertial and Body reference.	**07**

1