

GUJARAT TECHNOLOGICAL UNIVERSITY**BE-SEM-VIII Examination May 2012****Subject code: 180104****Subject Name: Aircraft Control and Navigation****Date:08/05/2012****Time: 10.30 am – 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.

- Q.1** (a) Explain missile control system in detail. **07**
 (b) Analyze relation between Dutch Roll and Damping **07**
- Q.2** (a) Write Short Notes on : **07**
 (i) Cross Coupling
 (ii) Acceleration Control **07**
- (b) Explain Pitch Orientation Control System with the help of suitable Block Diagram **07**
- OR**
- (b) Write Short Notes on : **07**
 (i) Euler Angle
 (ii) Celestial Navigation System
- Q.3** (a) Explain working principle of Servomechanism. What role it plays in Automatic Control of Aircraft? **07**
 (b) Explain difference between inner loop and outer loop control system of Automatic Flight control. **07**
- OR**
- Q.3** (a) Develop an equation of motion of an aircraft. **07**
 (b) Explain the working of a satellite based navigational system using suitable diagrams. **07**
- Q.4** (a) Write in brief the purpose and principle of working of a weather radar. **07**
 (b) Write Short Notes on (any Two) : **07**
 (i) Sensors
 (ii) Output devices
- OR**
- Q.4** (a) Compare Dead Reckoning and Radio Navigation System. **07**
 (b) Explain what role GPS plays in aircraft navigation. **07**
- Q.5** (a) Write Short Notes on : **07**
 (i) Automatic Flare Control
 (ii) Controllability of Aircraft
 (b) Explain the purpose of Automatic Fuel Control System in an aircraft. Explain how does it work in a large Jet airliner. **07**
- OR**
- Q.5** (a) Explain how Flight Management and Flight Direction Systems are combined. **07**
 (b) Analyze the relation between role of aircraft and choice of Navigation System **07**