

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-VIII • EXAMINATION – SUMMER 2013

Subject Code: 180104**Date: 09-05-2013****Subject Name: Aircraft Control and Navigation****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 Flight Path Stabilization in detail. **07**
- (b)** What do you understand by Transient Response of an aircraft? Explain with suitable examples. **07**
- Q.2 (a)** With the help of a diagram explain Displacement type Longitudinal Autopilot. **07**
Also mention its Advantages and Disadvantages.
- (b)** Explain the role of Inner Loop Control in Automatic Flight Control System. **07**
- OR**
- (b)** What does a Outer Loop Control play in Automatic Flight Control System? **07**
Explain giving examples.
- Q.3 (a)** List all the assumptions made while deriving equations of motion of aircraft. **07**
Justify your action.
- (b)** Explain in brief the term Course Computation in Aircraft Navigation. **07**
- OR**
- Q.3 (a)** What do you understand by Cross Coupling? Explain in detail. **07**
- (b)** Explain the principle of Dead Reckoning principle of Navigation. **07**
- Q.4 (a)** Define Navigation. Explain briefly various types of Navigational principles. **07**
- (b)** Explain Yaw Orientation Control system with the help of a suitable diagram. **07**
- OR**
- Q.4 (a)** Explain in detail the term Down Wash with suitable diagrams. **07**
- (b)** Derive an equation for linear motion of an aircraft. **07**
- Q.5 (a)** Explain the effects of high roll rates on stability of aircraft. **07**
- (b)** How do you arrive at aircraft attitude with respect to earth? **07**
Derive values of its fundamental elements.
- OR**
- Q.5 (a)** Explain Euler Angle system and establish relations between inertial and body reference. **07**
- (b)** With the help of a system wise block diagram explain the fundamental aspects of a modern Aircraft Navigation System **07**
