

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VIII EXAMINATION – SUMMER 2016****Subject Code:180104****Date:16/05/2016****Subject Name:Aircraft Control and Navigation (Department Elective-II)****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.

- Q.1** (a) Explain displacement type longitudinal autopilot with proper diagram. Also mention its advantages and disadvantages. **07**
 (b) Explain principle of navigation in brief. Also explain its application. **07**
- Q.2** (a) Derive an equation for linear motion of an aircraft. **07**
 (b) Explain pitch orientation control system with block diagram. **07**
- OR**
- (b) Explain outer loop control system and inner loop control system with proper example. **07**
- Q.3** (a) Explain satellite navigation system with example. **07**
 (b) Explain automatic approach and landing system of an aircraft with block diagram. **07**
- OR**
- Q.3** (a) Define Dutch roll. Explain damping of Dutch roll with block diagram. **07**
 (b) Explain inertial cross-coupling in brief. **07**
- Q.4** (a) Why flight automatic control system is used in aircraft. Explain principle and application of auto pilot system. **07**
 (b) Explain flight management system in brief with proper diagram. **07**
- OR**
- Q.4** (a) Explain dead reckoning principle of navigation in brief. **07**
 (b) Derive the equation to determine aircraft attitude with respect to earth. **07**
- Q.5** (a) Explain yaw orientation control system with block diagram. **07**
 (b) Explain acceleration control system with block diagram. **07**
- OR**
- Q.5** (a) Explain positioning principles and its method in brief. **07**
 (b) Explain glide slope coupler with proper diagram. **07**
