Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

A Constituent Institution of Manipal University

VI SEMESTER B.TECH. (OE-II AERONAUTICAL ENGINEERING)

END SEMESTER MAKEUP EXAMINATIONS, JUNE 2018

SUBJECT: INTRODUCTION TO AVIONIC AND NAVIGATION SYSTEM

[AAE 3282]

REVISED CREDIT SYSTEM
(25/06/2018)

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ALL** the questions.
- Missing data may be suitable assumed.

1A. "Autopilot assist the pilot". Autopilot does not mean replacement of a pilot in the aircraft. Justify with examples. **[04]**

1B. What is ILS-MLS coupling? Explain it with neat diagram. **[03]**

1C. Explain the word type, message data format and validation of a military standard databus. **[03]**

2A. How is cockpit glass protecting the operating condition of avionics in cold country during winter with minimum temperature? **[03]**

2B. What is integrated modular avionics architecture? Explain this with examples. **[03]**

2C. How is it possible of an aircraft to save the fuel with maximum distance travelled? Explain the technology used in this with neat diagram. **[04]**

3A. Sketch the A-380 cockpit and explain it. **[03]**

3B. Explain the flight control and actuation system of an Dreamliner Aircraft. **[04]**

3C. Explain the modern flight control system design used in aircraft with failure survival. **[03]**

4A. In figure (1), identify the aircraft avionics system. Explain its working principle and advantage over typical design. **[03]**

4B. Explain the 3 segments of satellite. How are minimum three satellites required to navigate any aircraft? Why is the most recommended? **[03]**

4C. Derive the aircraft velocity using pitot tube with neat diagram. What will be the **[04]**

its failure effect on PFD?

5A. Explain the six degree of freedom mathematical modeling of aircraft and explain the pitch motion control. **[03]**

5B. What is point source system? How the pilot navigates the aircraft near airport? Explain it. **[04]**

5C. Sketch the digital display system to project basic flight instruments to the pilot and explain the sensor failure situation. **[03]**

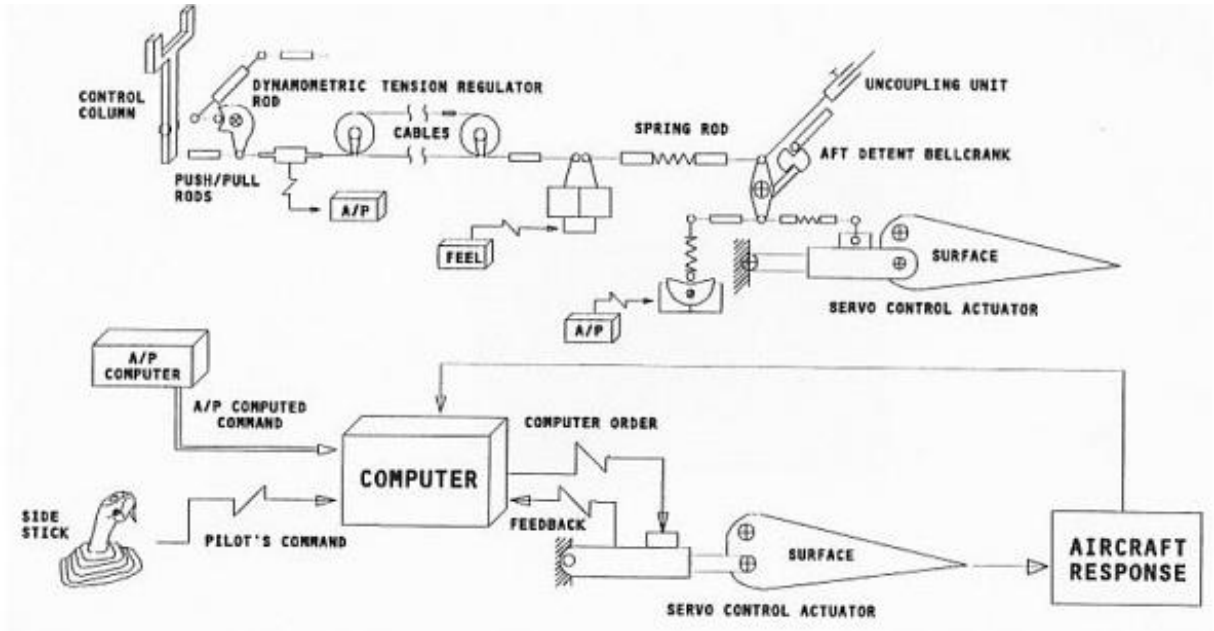

Figure (1)