

VI SEMESTER B.TECH. (OE-II AERONAUTICAL ENGINEERING) END SEMESTER EXAMINATIONS, APRIL 2018

SUBJECT: INTRODUCTION TO AVIONIC AND NAVIGATION SYSTEM

[AAE 3282]

REVISED CREDIT SYSTEM (28/04/2018)

Time: 3 Hours

MAX. MARKS: 50

Instructions to Candidates:

- ✤ Answer ALL the questions.
- Missing data may be suitable assumed.
- 1A. Explain the core avionic systems of the modern aircraft with neat diagram. [03]
- Explain the vertical and lateral guidance system principle used in microwave [03] landing system with neat diagram.
- **1C.** Explain the data transfer protocol, coding and electrical characteristics of **[04]** ARINC 429 with neat diagrams.
- **2A.** What is DGPS? Explain the aircraft positioning using differential based **[03]** satellite positioning technique.
- **2B.** Sketch the air data system and explain the three-basic flight informations **[03]** available from this on primary flight display.
- 2C. Explain the FBW flight control features and advantages with neat diagrams. [04]
- **3A.** What are the basic difference among INS, IMU and IRS? [02]
- **3B.** Sketch the aircraft and show the different flight control -primary and **[04]** secondary in the A380. Briefly explain the flight control system.
- **3C.** Explain the longitudinal motion of an aircraft and list the related stability **[04]** derivative parameters, coefficients and their importance in the aircraft.
- **4A.** What is the importance of DME and VOR in the aircraft? **[02]**
- **4B.** Explain the A330 electronic instrument system with neat diagram and **[04]** mention the source of LRUs?
- **4C.** Explain the FMS architecture with neat diagram.[04]

- **5A.** Explain the working principle of analog airspeed, altimeter and vertical speed **[03]** with neat sketches.
- 5B. Write subsystems name in each blank box connected as shown in the figure [03] (1) and briefly explain the complete system.
- **5C.** What is the basic principles of autopilot system? Explain the height and **[04]** heading control autopilot system with neat diagram.



Figure (1)