

MANIPAL INSTITUTE OF TECHNOLOGY MANIPAL

A Constituent Institution of Manipal University

VII SEMESTER B.TECH. (AERONAUTICAL ENGINEERING) END SEMESTER EXAMINATIONS, DECEMBER 2017

SUBJECT: AVIONIC AND NAVIGATION SYSTEM [AAE 4103]

REVISED CREDIT SYSTEM (28/12/2017)

Time: 3 Hours

MAX. MARKS: 50

Instructions to Candidates:

- ✤ Answer ALL the questions.
- Missing data may be suitable assumed.
- **1A.** Explain the LRU, LRM of A-380 with two examples.[02]
- **1B.** What is SLS? Explain aircraft PVT calculation using this landing system with **[04]** neat diagrams.
- **1C.** What is the head motion box concept? Explain it with neat diagram. **[04]**
- 2A. In figure (2), identify the flight phase and show the indicated informations. [02]
- **2B.** Explain MIL-STD 1553 data bus. Highlights-Redundancy, Data transfer, word **[04]** format and electrical characteristics.
- **2C.** Explain the basic air data system with neat diagram and list the all seven **[04]** parameters calculated as its outputs.
- **3A.** What are the operational modes in FMS? Explain with neat diagrams. **[03]**
- **3B.** Explain the all main characteristics and requirements for an airborne DVI **[03]** system and highlights its basic principles.
- **3C.** Explain with neat sketches of Localiser coupling loop and ILS Glide Slope **[04]** coupling loop.
- 4A. In figure (1), identify the aircraft and avionics subsystems. Briefly discussed it. [02]
- **4B.** What are the advantages of modern digital implementation compared with **[03]** analogue? Briefly explain.
- **4C.** What is the task automation systems? Explain its five tasks and roles. **[05]**
- 5A. Explain the categories of failures in fly by wire flight control system. [03]
- 5B. What is Doppler/heading reference DR navigation system? Explain the [03]

position calculation with neat diagram.

5C. Explain the any three-point source navigation systems with neat diagrams. **[04]**



Figure (2)