Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

I SEMESTER M.TECH. (AVIONICS)

END SEMESTER EXAMINATIONS, NOV 2019

SUBJECT: AVIONICS SYSTEM ENGINEERING [AAE 5151]

REVISED CREDIT SYSTEM
(23/11/2019)

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

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

1A. Define the system engineering with "Vee" model. Discuss the scope of system engineering in avionics system design. **[02]**

1B. Explain the TDSS plan and process in digital avionics modeling and simulation. Justify with its approach in missile store management system in fighter. **[04]**

1C. Discuss the EIA 632 standards and its application in avionics system design and development. Justify with example. **[04]**

2A. What do you mean by stakeholder? How stakeholder requirements are important prior to logical decomposition and design solution? **[03]**

2B. Explain the product realization process with neat diagrams. Briefly discuss all the points. **[04]**

2C. Justify the need of a system engineer and system manager for a successful project or product development. Explain it with example. **[03]**

3A. What are ADS-B and Radarbox.com? **[02]**

3B. Justify the evolution of architecture and avionics generation with neat diagram. Give one example to each. **[04]**

3C. Discuss the technical risk management and configuration management with neat diagram and justify with example. **[04]**

4A. Discuss the requirement verification matrix and how to create the validation plan with a validation requirements matrix. **[04]**

4B. List the data buses available in the aircraft for exchange of avionics system's informations. **[02]**

4C. Explain the Airbus 330/340 cockpit layout and avionics system design with neat diagram and compare it with modern Airbus aircraft cockpit. **[04]**

5A. Discuss how to write a good requirement-checklist and consider the problem of designing a modern aircraft cockpit layout to display critical information. **[04]**

5B. What is SEMP? Apply the SEMP in fault tolerant avionics. **[03]**

5C. What is integrated modular avionics (IMA)? Why it is important today? Highlight its design consideration and certification needs? **[03]**