R09

Code No: 58089

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year II Semester Examinations, May - 2019
AVIONICS AND INSTRUMENTS
(Aeronautical Engineering)

Time: 3 Hours **Max. Marks: 75**

Answer any Five Questions
All Questions Carry Equal Marks
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1.a) Illustrate the nature of microelectronic devices with a comparison between digital world and real world.
b) What is a data bus? Explain the working of data bus majorly being used in current aviation industry with advantages and disadvantages. [8+7]

2. Discuss about working application and types of instruments used air data sensors with neat diagrams wherever required. Why do you think air data collection is very crucial in an aircraft? [15]

3.a) Describe how the satellite communications are more reliable in aircraft communication?
b) Briefly write about instrument landing system (ILS) with the help of a neat sketch. [8+7]

4.a) Explain the working phenomenon of lateral navigation(LNAV) and vertical navigation (VNAV).
b) As a part of future air navigation system (FANS), explain the working and integration of terrain awareness and warning system (TAWS). [8+7]

5.a) Describe the nature and use of the different forms of flight control actuation systems.
b) Discuss about the working of integrated autopilot system. Support your answer using Boeing 777 Autopilot Flight Director Computers (AFDC). [8+7]

6.a) Analyze the classical method for defining navigation performance.
b) Explain the use of the ATC mode S transponder in navigation of an aircraft. [9+6]

7.a) How does the Avionic and mission system interface work in military aircraft?
b) Evaluate the working and integration of navigation aids of military aircraft. [8+7]

8. According to you how vital are command and telemetry systems in a spacecraft navigation and communication? Use an example of ISRO's command and telemetry systems to support your answer. [15]

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