

R09

Code No: 58089

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech IV Year II Semester Examinations, July - 2019

AVIONICS AND INSTRUMENTS

(Aeronautical Engineering)

Time: 3 Hours

Max. Marks: 75

**Answer any Five Questions
All Questions Carry Equal Marks**

- 1.a) Distinguish between ARINC 429 (A429) data bus and ARINC 629 (A629) data bus. According to you which one is more advanced in features and uses?
- b) Describe the working of integrated modular avionics (IMA). Support your answer with advantages and disadvantages. [8+7]
- 2.a) Explain the working of Magnetic Heading Reference System (MHRS).
- b) Why do you think Three-dimensional and four-dimensional display formats can be better options compared to cathode ray tube (CRT) displays? [7+8]
- 3.a) Discuss the importance of traffic collision and avoidance system (TCAS) as a communication aid.
- b) Compare transponder landing system (TLS) and microwave landing system (MLS).[8+7]
4. Elaborate the working of radio navigation system and inertial navigation systems for oceanic crossings. Support your answer by explaining various components involved in both the mentioned above navigation systems. [15]
- 5.a) Briefly explain how Flight control systems works based upon frames of reference of Flight control?
- b) Illustrate the working of Autopilot Flight Director Systems (AFDSs). [8+7]
- 6.a) Explain the working of differential GPS enhancements.
- b) Discuss about Required Navigation Performance criteria of area navigation (RNAV). [7+8]
- 7.a) Analyze the use of Acoustics in detecting and tracking submarines.
- b) Evaluate the working phenomenon of Air-to-air refueling. [6+9]
8. Justify the need of types of radar used in aircraft. Use civil aviation applications and military applications to support your answer. [15]

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