Code No: 56073 **R09**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year II Semester Examinations, December - 2017
AIRCRAFT SYSTEMS
(Aeronautical Engineering)

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

Answer any five questions
All questions carry equal marks
- - -

1. Explain the different aircraft systems and the environmental conditions under which they have to operate. What differs in between airframe and vehicle systems. [15]

2.a) Explain with neat sketch about a typical alternative current (AC) aircraft electrical system.
b) What are the power conversion methods? Briefly explain any one of them. [8+7]

3.a) What is the basic principle on which a hydraulic system works? What are the main components of a hydraulic system? Explain in detail, considering a hydraulic system to actuate a rudder.
b) Differentiate the functioning of electro-hydrostatic and electro mechanical actuators. Draw the block diagrams for both the systems. [9+6]

4.a) What is the need for controlling cabin environment? Explain the principal sources of heat in an aircraft.
b) With the help of neat schematic diagrams explain two types of air cycle refrigeration systems. [8+7]

5. What are the different methods in which fuel quantity is measured? What are their advantages and disadvantages? With the help of a neat sketch explain basic capacitance type fuel quantity indicating system. [15]

6.a) Compare analog and digital fly by wire flight control systems. Explain the concept of integrated flight and propulsion control system with its salient features.
b) What do you understand by Q feel? Explain with a neat sketch, how artificial feel unit works for the continuous demands. [8+7]

7.a) What do you mean by gathering evidence in the life cycle? Explain with a real time example.
b) Explain the safety and economic considerations that are to be taken while design and development of a system. [8+7]

8.a) Explain the different levels of system integration. Explain each level with at least two examples.
b) Explain the major factors to be considered in safety aspects of system integration and interfacing. [8+7]

---ooOoo---