

**Code No: 56073****JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B. Tech III Year II Semester Examinations, June - 2022****AIRCRAFT SYSTEMS****(Aeronautical Engineering)****Time: 3 hours****Max. Marks: 75**

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

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- 1.a) Write down the mission and performance requirements for a fighter aircraft with suitable examples.
- b) What do you mean by subsystems of Avionics? Write a short note on operating environment conditions of aircraft. [7+8]
- 2.a) Draw a diagram and explain 'Differential relay' in aircraft electrics.
- b) Explain with neat sketch about a typical alternative current (AC) aircraft electrical system. [7+8]
- 3.a) With the help of a neat sketch, explain the working of the retractive system for landing gear assembly in an aircraft.
- b) Explain the mechanism of hydraulically operated control surface. [8+7]
- 4.a) Draw the diagram of a refrigeration cooling system in an aircraft and explain various processes involved in it.
- b) List and explain the types of overheat detectors used in fire protection systems. [8+7]
5. What are the different types of systems used for starting aircraft jet engines? Explain each of them. [15]
- 6.a) Explain in detail about the power control mechanism by electro-mechanical actuation and fly by wire system with neat schematic diagrams.
- b) Compare conventional control systems with power assisted flight control systems. [8+7]
7. What are the aspects of Safety and integrity while designing the aircraft system and sub system? [15]
- 8.a) Discuss in detail the Aircraft electrical system integration with its sub systems with suitable sketches.
- b) Explain the need for aircraft system integration. What are the existing levels of integration? [7+8]

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