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Question Paper Code: AAE010



INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Four Year B.Tech V Semester End Examinations (Regular) - November, 2018

Regulation: IARE – R16

AIRCRAFT SYSTEMS AND CONTROLS

Time: 3 Hours

(AE)

Max Marks: 70

Answer ONE Question from each Unit

All Questions Carry Equal Marks

All parts of the question must be answered in one place only

UNIT – I

1. (a) Discuss the following [7M]
 - i. Avionic system of the aircraft.
 - ii. Mission system of the aircraft.
- (b) Enumerate the major aircraft systems and their subsystems of civil transport aircraft? [7M]
2. (a) What is flight management system? With neat sketch explain flight management system? [7M]
- (b) Define airdata measurement. Explain the concept of generic system with neat sketch. [7M]

UNIT – II

3. (a) Explain turbofan and bootstrap system of refrigeration systems with sketch. [7M]
- (b) Discuss in detail about pressurization system of aircraft. [7M]
4. (a) Explain the primary power distribution of aircraft with neat sketch. Discuss different types of power conversions required in aircraft? [7M]
- (b) List out the various types of modern electrical power generations in aircraft Explain any one power generation with application. [7M]

UNIT – III

5. (a) With a neat sketch explain the working principle of pneumatic system. [7M]
- (b) Differentiate pneumatic and hydraulic system of aircraft. [7M]
6. (a) Explain briefly about braking, anti –skid & steering. [7M]
- (b) What is wing anti icing system and engine anti icing system. Explain in detail. [7M]

UNIT – IV

7. (a) Explain the working principle of turbojet engine. [7M]
(b) Describe the functions of sensors used for engine monitoring. [7M]
8. (a) Explain the functions of FADEC in typical jet engine with suitable diagram. [7M]
(b) Explain the typical fuel system of aircraft and the functions of its components. [7M]

UNIT – V

9. (a) Explain the fly by wire flight control system with a neat sketch. Discuss in brief about flight control laws. [7M]
(b) Describe the working of any one advanced actuator package with neat sketch. [7M]
10. (a) Justify why redundancy is required in flight control actuation? Explain the multiple redundancy actuations with suitable sketch? [7M]
(b) Explain the following with neat sketches [7M]
i. push pull control rod systems
ii. instrument landing system

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