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Question Paper Code: AAE010



INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Four Year B.Tech V Semester End Examinations (Supplementary) - January, 2019

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) Sketch and explain the [7M]
 - i. Hierarchical view of a project system.
 - ii. Hierarchical view of a product system
- (b) Illustrate the head up display unit with neat sketch and write its advantages and disadvantages over CRT display. [7M]
2. (a) What is the importance of the radio frequency radiation, altitude and temperature of product environment? [7M]
- (b) Write a detail note on how the operating environment conditions of an aircraft are maintained. [7M]

UNIT – II

3. (a) Demonstrate the DC power generation and power distribution system of an aircraft electrical system. [7M]
- (b) Discuss the importance of air conditioning system in modern aircrafts and explain cabin pressurization. [7M]
4. (a) Describe the fire detection and suppression system of an aircraft. [7M]
- (b) Explain the oxygen systems of aircraft system and g-tolerance in detail. [7M]

UNIT – III

5. (a) With the help of a neat sketch demonstrate operation of hydraulic system of an aircraft and write any two hydraulic fluids of hydraulic system. [7M]
- (b) What is a landing gear? Explain anti skidding system and anti braking of an aircraft. [7M]
6. (a) Discuss the advantages and various applications of hydraulic system in aircraft. [7M]
- (b) Classify different types of landing gear in aircrafts with neat sketches. [7M]

UNIT – IV

7. (a) List out the components of aircraft fuel system and elaborate with neat sketches. [7M]
(b) With suitable sketch of turbo prop engine illustrate the generation of thrust. [7M]
8. (a) With the help of neat sketch describe the operation of the indicator used to monitor the health of an engine. [7M]
(b) Justify how fuel transfer pump differs from fuel booster pump and explain the different fuel transfer valves. [7M]

UNIT – V

9. (a) Discuss the electro hydrostatic actuation in aircraft control system. Differentiate with electro mechanical actuation with sketches. [7M]
(b) Write the principles of flight control of flight control systems and explain secondary flight controls of aircraft. [7M]
10. (a) List out the different types of navigation system and briefly discuss the advantages and disadvantages of them. [7M]
(b) With a neat diagram, explain push pull rod control systems of aircraft flight control system. [7M]

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