



(Following Paper ID and Roll No. to be filled in your Answer Book)

**PAPER ID : 148601**

Roll No.

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## B. Tech.

(SEM. VI) THEORY EXAMINATION, 2014-15  
AIRCRAFT INSTRUMENTS

Time : 3 Hours]

[Total Marks : 100

*Attempt ALL questions*

- 1 Attempt any TWO parts : (10×2=20)
  - (A) What do you understand by GLASS COCKPIT. With the help of a labeled sketch show the instruments locations in a cockpit of modern aircraft.
  - (B) Write hexadecimal numbers (0 through F) and their equivalents in decimal, binary, octal in a tabular form.
  - (C) Write short notes on Analog to Digital converters and Digital to Analog converters
  
- 2 Attempt any two parts : (10×2=20)
  - (A) Draw the symbols and truth tables for the following LOGIC GATES
    - (i) EXCLUSIVE –OR
    - (ii) OR
    - (iii) AND
    - (iv) NOT
    - (v) Make a NOR gate using OR and NOT gates.

- (B) Draw a basic practical data bus system used in aircraft and show its following components.
- (i) Avionic LRU
  - (ii) Serial Data Bus
  - (iii) Bus interface
  - (iv) Parallel Data bus
  - (v) Bus Coupler
- (C) In short explain the following terms in reference to aircraft data bus.
- (i) ARINC 429
  - (ii) Clock
  - (iii) Unidirectional Bus
  - (iv) Protocol
  - (v) Multiplexing

3 Attempt any TWO parts : (10×2=20)

- (A) With the help of diagrams briefly explain the function and importance of CONE OF ACCEPTANCE, CLADDING and CORE in fiber optics.
- (B) With examples discuss the manner which you will consider for classification/grouping of integrated circuits..What are advantages and problems associated in using ICs in aircraft.
- (C) Describe briefly the working of microprocessor based computer system used in aircrafts. Label the components of the basic system.

- 4 Attempt any ONE part : (20×1=20)
- (A) What types of electronic displays are used in aircrafts. Using labeled diagram describe the working of any one type.
  - (B) What do you understand by ELECTRO SENSITIVE DEVICES ? Why and What precautions will you take for protecting ELECTRO SENSITIVE DEVICES from damage while working on them.
- 5 Attempt any two parts : 10\*2=20
- (A) Why EMC is important in aircrafts .With the help of diagrams explain the various coupling modes in EMI.
  - (B) What is GPS. Using diagrams, explain the working of space segment of GPS ?
  - (C) Briefly describe Inertial Reference System (IRS)
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