

IV B.Tech I Semester Regular Examinations, November 2005
AVIONICS
(Aeronautical Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. Boeing-777 commercial transport aircraft incorporates state-of-art Technology in its Design for AVIONIC systems. Explain. [16]
2. Using “Hexa Decimal” Memory Address, explain architecture of SAP Micro-computer. [16]
3. (a) List out the Instrumentation requirement as per ICAO. [8]
(b) What is the concept of “Hands-off” in a civil cock. pit [8]
4. With the help of a Block diagram, explain air-borne Radar system. [8]
5. (a) Define Dead Reckoning and Doppler Navigation. [8]
(b) Explain the principles of Doppler Navigation to find height. [8]
6. (a) What are the 3 sub-systems/Information of ILS explain. [8]
(b) What are the main limitations of Instrument Landing system. [8]
7. (a) What do you mean by control and display unit in respect of HUD/MFD. (8)
(b) For Aeronautical applications, what are the Inputs/outputs of Head Up Displays? (8)
8. Write short notes on:
 - (a) System design consideration of AVIONICS. (4)
 - (b) “Ada” language for military AVIONIC systems. (4)
 - (c) survivability of military AVIONIC systems. (4)
 - (d) validation and certification. (4)

IV B.Tech I Semester Regular Examinations, November 2005
AVIONICS
(Aeronautical Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) List out the AVIONIC specialities of any space system such as INSAT. [8]
(b) How Telemetry and Tracking can be differentiated with R/T Communication. [8]
2. Explain in detail the state-of-art technology Micro Processor incorporated Digital computer and its fundamentals. [16]
3. (a) “Cathode Ray tube” is being used as a powerful Display Tool. Why. [8]
(b) Compare CRT performance with PDP characteristics. [8]
4. (a) Why Radio-Communication system required in an aeroplane. Explain its methodology. [8]
(b) With a simple block-diagram a typical Radio installation. [8]
5. (a) Main advantage of Doppler Radar is that it cannot be Jammed. Explain how and why? [8]
(b) With the help of a simple block diagram, explain Radar Altimeter. [8]
6. (a) What is the concept of “Area Navigation used for Aeronautical application. [8]
(b) Explain the principle and operation of TACAN . [8]
7. Depicting Input-outputs, explain the “Functional Block Diagram of Air Data computer” for Aeronautical application. (16)
8. Write short notes on:
 - (a) Highspeed DATA bus. (4)
 - (b) Cathode Ray tube versatile Display Device. (4)
 - (c) High Resolution Flat panel in aircraft cock-pit. (4)
 - (d) Multi-function control/display unit. (4)

IV B.Tech I Semester Regular Examinations, November 2005
AVIONICS
(Aeronautical Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. Using a “Schematic layout” explain how all the AVIONIC sub-systems can be integrated to achieve “AUTO-FLIGHT” mode in any craft. [16]
2. (a) With the help of schematic layout, explain DATA flow in Digital computer. [8]
(b) What is the difference between High level language and Low level Language. Mention the name of Hardware required to convert HLL to Machine Language. [8]
3. “Touch screen” concept is slowly being replaced by DVI. Explain in detail the methodology of Direct Voice Input system. [16]
4. (a) What is “Electronic Indicating and Crew Alerting system EICAS” [8]
(b) How the above system is integrated to “AUTO-FLIGHT control system? [8]
5. (a) What are the Advantages/Disadvantages of Air Driven Gyro Vs Electrically driven Gyroscope? [8]
(b) How it is used in Artificial Horizon/Turn and Slip Indicator Nav Instrument. [8]
6. (a) For finding out “Range” information Radar principle is to be used. Explain. [8]
(b) Differentiate DME and SSR Navigation System used in Aeronautical applications. [8]
7. Draw a block-diagram and explain Analog version of Air data computer as an example of Aeronautical application. (16)
8. Write short notes on:
 - (a) DATA transfer and BUS architecture. (4)
 - (b) Hardware performance specifications. (4)
 - (c) EL display in civil air liner cockpit. (4)
 - (d) Cathode ray tube and Head Up Display. (4)

IV B.Tech I Semester Regular Examinations, November 2005
AVIONICS
(Aeronautical Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) List out various AVIONIC sub-systems in use in any aeroplane. [8]
(b) Differentiate between civil and military requirements. [8]
2. The main hardware in any Digital computer is called Mother Board. Draw a diagram and explain. [16]
3. (a) What will be difference between Fighter and Transport aircrafts' cockpit. [8]
(b) List out the basic Instrumentation required in any cockpit of aircraft. [8]
4. (a) Why FM Radio had become popular. Explain advantages. [8]
(b) Explain the concept of frequency Modulation technique. [8]
5. (a) Most of the Navigational Instruments used Gyro principle. Explain. [8]
(b) Define Rigidity and Precession as applicable to Gyro scope. [8]
6. (a) For finding out "Range" information Radar principle is to be used. Explain. [8]

(b) Differentiate DME and SSR Navigation System used in Aeronautical applications. [8]
7. With the help of "system architecture diagram", explain any "fault tolerant Air-plane system". (16)
8. Write short notes on:
 - (a) DATA transfer and BUS architecture. (4)
 - (b) Hardware performance specifications. (4)
 - (c) EL display in civil air liner cockpit. (4)
 - (d) Cathode ray tube and Head Up Display. (4)
