

QUESTION BANK

SUBJECT CODE: -AE8751

SUBJECT NAME: -AVIONICS

YEAR / SEM : - IV/VII

UNIT-I INTRODUCTION TO AVIONICS

Q.No	Question	BT Level	Competence
PART – A			
1	What are major drivers for avionics in civil transport aircraft?	BTL1	REMEMBER
2	Define the usage of avionics in space systems.	BTL1	REMEMBER
3	What is avionics?	BTL1	REMEMBER
4	Explain the advantage of using avionics in civil aircraft.	BTL2	UNDERSTAND
5	Explain the advantage of using avionics in military aircraft.	BTL2	UNDERSTAND
6	Give the general advantage of Avionics over the conventional aircraft system.	BTL2	UNDERSTAND
7	Define the usage of avionics in space system	BTL1	REMEMBER
8	Give few examples of integrated avionics system used in weapon system.	BTL2	UNDERSTAND
9	Give few examples of integrated avionics system used in civil airlines.	BTL2	UNDERSTAND
10	Explain “illities” of Avionics system	BTL2	UNDERSTAND
11	Give various systems where the avionics used in aircrafts.	BTL2	UNDERSTAND
12	Explain the steps involved in design of avionics system.	BTL2	UNDERSTAND
13	Give few examples of Standards used in design of avionics system.	BTL2	UNDERSTAND
14	Explain the types of memories?	BTL2	UNDERSTAND
15	Explain the major components of microprocessor.	BTL2	UNDERSTAND
16	Explain the usage of microprocessors in Avionics systems.	BTL2	UNDERSTAND
17	What is a volatile memory and give examples?	BTL1	REMEMBER
18	Differentiate between volatile and non volatile memories	BTL4	ANALYZE
19	What are digital computers?	BTL1	REMEMBER
20	Give the need for standard documents in the design of avionics system.	BTL2	UNDERSTAND

PART – B

1.	i) Explain the need of avionics in Civil and military aircrafts. ii) Explain few Integrated Avionics system and weapon system.		
2.	i) What are the major design drivers for avionics system? Describe the various 'illities' in Avionics systems.	BTL1	REMEMBER
3.	With a neat block diagram explain the integration of different avionics system.		
4.	i) Explain clearly the top down design procedure that is adopted in Avionics system design. ii) List the factor on which Avionics design is evaluated and explain each factor in brief.	BTL2	UNDERSTAND
5.	Explain the various layers of Avionics systems used in a typical airplane with a neat sketch	BTL2	UNDERSTAND
6.	i) Draw the functional representation of ROM memory cell and explain the concept underlying the ROM.	BTL4	ANALYZE
7.	Describe with a block schematic how a digital computer can be used to measure analog signal	BTL2	UNDERSTAND
8.	Explain the interference of seven segment LED with the microprocessor to display a binary data.	BTL2	UNDERSTAND
9.	Compare the memory mapped I/O and peripheral mapped I/O in Microprocessor.	BTL2	UNDERSTAND
10	Explain the design and technologies involved in avionics system and the standards used for it.	BTL2	UNDERSTAND

UNIT II- DIGITAL AVIONICS ARCHITECTURE

Q.No	Question	BT Level	Competence
PART – A			
1	What is need of defining various Avionics architecture?	BTL1	REMEMBER
2	Why is the open system architecture so popular in the modern avionics systems?	BTL2	UNDERSTAND
3	What are the major drivers and needs for Avionics?	BTL1	REMEMBER
4	Differentiate between MIL and ARINC standard in terms of BUS speed?	BTL4	ANALYZE
5	What is the need for two different speeds in ARINC 429 data bus?	BTL1	REMEMBER
6	Distinguish between pave pace and pave pillar architecture?	BTL4	ANALYZE
7	Write the specification of ARINC429 packing standard?	BTL2	UNDERSTAND
8	Give few avionics architecture.	BTL2	UNDERSTAND
9	Explain Federated architecture.	BTL2	UNDERSTAND
10	Explain centralized architecture.	BTL2	UNDERSTAND
11	How is federated architecture different from centralized architecture?	BTL2	UNDERSTAND
12	Explain MIL-STD 1553B components?	BTL2	UNDERSTAND
13	Explain the status word of MIL-STD 1553B.	BTL2	UNDERSTAND
14	Explain the bus controller and Remote terminal of MIL-STD 1553B.	BTL2	UNDERSTAND
15	Explain ARINC 429 standard.	BTL2	UNDERSTAND
16	Explain ARINC 629 standard.	BTL2	UNDERSTAND
17	Differentiate between Civil and military communication standards.	BTL4	ANALYZE
18	Differentiate between ARINC 429 and ARINC 629.	BTL4	ANALYZE
19	Differentiate between MIL and ARINC standard in terms of RT?	BTL4	ANALYZE
20	Differentiate between MIL and ARINC standard in terms of BUS speed?	BTL4	ANALYZE
21	What is the need for two different speeds in ARINC 429 data bus?	BTL1	REMEMBER
PART – B			

1	Discuss the various avionics architecture in detail.	BTL2	UNDERSTAND
2	Explain the ARINC 429 data bus in detail.	BTL2	UNDERSTAND
3	Explain the ARINC 629 data bus in detail.	BTL2	UNDERSTAND
4	Explain MIL STD 1553 B data bus in detail bring out clearly the bus architecture, protocol, word ad message formats and coupling methods.	BTL2	UNDERSTAND
5	List the evolution of avionics architecture starting from first generation to fourth generation.	BTL 1	REMEMBER
6	Describe in detail about one of the third generation Avionics Architecture with block schematics.	BTL2	UNDERSTAND

UNIT –III FLIGHT DECKS AND COCKPITS

Q.No	Question	BT Level	Competence
PART – A			
1.	What are the advantages of HMD over HUD?	BTL1	REMEMBER
2.	What is HOTAS?	BTL1	REMEMBER
3.	What is meant by DVI?	BTL1	REMEMBER
4.	Define Glass cockpit.	BTL1	REMEMBER
5.	Define plasma panel.	BTL1	REMEMBER
6.	Differentiate LED & LCD.	BTL4	ANALYZE
7.	Explain CRT and its usage in aircraft displays.	BTL2	UNDERSTAND
8	What is meant by DVI?	BTL1	REMEMBER
9.	What are MFD and its significance in Aircraft?	BTL1	REMEMBER
10.	Explain the advantage of HMD over MUD?	BTL2	UNDERSTAND
11.	Explain MFK and its usage.	BTL2	UNDERSTAND
12.	Explain HUD?	BTL2	UNDERSTAND
13.	What is usage of night vision goggles?	BTL1	REMEMBER
14.	Explain advantage of EL over Plasma display.	BTL2	UNDERSTAND
15.	Explain the need of communication system in airline.	BTL2	UNDERSTAND
PART – B			
1	Compare and contrast the display technologies CRT,LED,LCD,EL and plasma panel	BTL4	ANALYZE
2	What are the various types of CRTs used in civil and military aircraft and explain them in detail.	BTL1	REMEMBER

3	Explain the basic principle of HUD and what are its limitations?	BTL2	UNDERSTAND
4	How are they overcome in HMD?	BTL2	UNDERSTAND
5	what are special features of DVI?	BTL1	REMEMBER
6	Describe the layout of a cockpit.	BTL2	UNDERSTAND
7	Explain MFKs, HMD, HUD and HDD in detail.	BTL2	UNDERSTAND

UNIT –IV INTRODUCTION TO NAVIGATION SYSTEMS

Q.No	Question	BT Level	Competence
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PART - A

1.	Define Dead reckoning navigation system	BTL1	REMEMBER
2.	Explain the types of Navigation.	BTL2	UNDERSTAND
3.	Explain Dead reckoning type of navigation.	BTL2	UNDERSTAND
4.	What is INS?	BTL1	REMEMBER
5.	What are different types of INS?	BTL1	REMEMBER
6.	What is GPS?	BTL1	REMEMBER
7.	Compare INS and GPS.	BTL4	ANALYZE
8.	What is Flight control system?	BTL1	REMEMBER
9.	What is Actuator?	BTL1	REMEMBER
10.	Explain the steps of certification.	BTL2	UNDERSTAND
11.	Explain Gimbaled INS.	BTL2	UNDERSTAND
12.	Explain the specific advantages of INS.	BTL2	UNDERSTAND
13.	Explain the advantage of GPS over conventional navigation.	BTL2	UNDERSTAND
14.	Explain maintainability.	BTL2	UNDERSTAND
15.	Explain RADAR.	BTL2	UNDERSTAND

PART -B

1	What is the need for a communication system in aircraft?	BTL1	REMEMBER
2	Explain one of the most modern reliable communication systems used in aircraft with a block schematic.	BTL2	UNDERSTAND
3	What is the need for a communication system in aircraft?	BTL1	REMEMBER
4	Explain one of the used inertial Navigation System in aircraft with a block schematic.	BTL2	UNDERSTAND
5	Explain the ADF tracking operation.	BTL2	UNDERSTAND

6	Explain one of the used DME System in aircraft with a block schematic.	BTL2	UNDERSTAND
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UNIT –V AIR DATA SYSTEMS AND AUTO PILOT SYSTEMS

Q.No	Question	BT Level	Competence
PART - A			
1.	What is an auto pilot?	BTL1	REMEMBER
2.	When is Autopilot Activated?	BTL1	REMEMBER
3.	What are the types of airspeed?	BTL1	REMEMBER
4.	Define altitude.	BTL1	REMEMBER
5.	What are the advantages of Inertial Navigation Systems?	BTL1	REMEMBER
6.	What is electronic warfare?	BTL1	REMEMBER
7.	What are the various classification of Navigation system?	BTL1	REMEMBER
8.	Describe Fly-by-Wire flight control systems?	BTL2	UNDERSTAND
9.	Explain Weather radar.	BTL2	UNDERSTAND
10.	Explain the need of accurate navigation.	BTL2	UNDERSTAND
11.	Explain the need of accurate navigation.	BTL2	UNDERSTAND
12.	Describe the various dead reckoning navigation systems used in aircraft.	BTL2	UNDERSTAND
PART – B			
1	Explain one of the most modern reliable communication systems used in aircraft with a block schematic.	BTL2	UNDERSTAND
2	What is GPS and explain the working of it with codes of communication used for locating the object.	BTL1	REMEMBER
3	Explain Conventional Flight control system and advantage of FBW to overcome the disadvantage of Conventional FCS.	BTL2	UNDERSTAND
4	Briefly explain altimeter and types of true altitude	BTL2	UNDERSTAND
5	Briefly explain airspeed indicator.	BTL2	UNDERSTAND
6	Briefly explain mach warning.	BTL2	UNDERSTAND
7	Briefly explain true airspeed & calibrated airspeed	BTL2	UNDERSTAND