

CBCS SCHEME

15AE81

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Eighth Semester B.E. Degree Examination, June/July 2023

Avionics

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Explain split bus bar system used for electrical power distribution on board the aircraft. (08 Marks)
- b. List the various switching devices available and explain the following switches:
 - i) Pressure switches
 - ii) Time switches
 - iii) Proximity switches. (08 Marks)

OR

- 2 a. Explain briefly about the special purpose cables in aircraft electrical systems. (05 Marks)
- b. What do you mean by pole and throw? Explain with the help of suitable sketches the possible arrangements. (05 Marks)
- c. Explain the importance of avionics systems in civil and military aircrafts. (06 Marks)

Module-2

- 3 a. Explain different inflight alignment methods. (08 Marks)
- b. Explain roll rate command control with neat diagram. (08 Marks)

OR

- 4 a. Explain basic operational principle of an inertial navigation system. (08 Marks)
- b. What are the common modes of failures in avionics systems? (08 Marks)

Module-3

- 5 a. List the basic flight instruments used on the aircraft represent with a schematic diagram basic 'six' and 'basic T' type of flight instrument grouping. (08 Marks)
- b. Draw a functional block diagram and explain the digital air data computer used for onboard air data processing. (08 Marks)

OR

- 6 a. What is an oscillator? How an oscillator generates sine and square wave forms? (08 Marks)
- b. Briefly explain the following: (i) Notch antenna. (ii) Slot antenna. (08 Marks)

Module-4

- 7 a. Write short notes on the following: (i) EPROM (ii) EEPROM (06 Marks)
- b. With a neat schematic block diagram, explain the overall avionics system architecture for a military aircraft. (10 Marks)

OR

- 8 a. Briefly discuss the following: (i) HOTAS (ii) HUD (10 Marks)
- b. List the advantages and disadvantages of liquid crystal display for use in flight deck instrument display. (06 Marks)

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Module-5

- 9 a. Describe the principle of RADAR. (05 Marks)
b. Explain SIGINT and ECM. (06 Marks)
c. Describe ARINC 429. (05 Marks)

OR

- 10 a. Explain NRZ and Manchester bi-phase with neat diagram. (06 Marks)
b. With neat diagram, explain any 3 transfer formats used in MIL-STD-1553B. (10 Marks)
