Hall Ticket No | | | | | | | | | | | Question Paper Code: AAEB45

INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)
Dundigal-500043, Hyderabad

B.Tech VII SEMESTER END EXAMINATIONS (REGULAR) - FEBRUARY 2022
Regulation: R18
AVIONICS AND INSTRUMENTATION

Time: 3 Hours **(AE)** **Max Marks: 70**

Answer FIVE Questions choosing ONE question from each module
(NOTE: Provision is given to answer TWO questions from any ONE module)
All Questions Carry Equal Marks
All parts of the question must be answered in one place only

MODULE – I

1. (a) Distinguish between the different types of DR navigation systems used in airplanes. **[7M]**
   (b) Discuss aircraft flight path control system for automatic landing in low or no visibility. **[7M]**
2. (a) Discuss the nature of microelectronic devices and explain about the microprocessor. **[7M]**
   (b) Explain the integrated modular avionics in realtime computer network airborne systems. **[7M]**

MODULE – II

3. (a) Discuss the operation of the RADAR altimeter using relevant diagrams. **[7M]**
   (b) Describe the requirement of sensors in avionics and air data sensor in detail with required examples. **[7M]**
4. (a) Explain the magnetic heading reference system with applications of present aviation industry. **[7M]**
   (b) Illustrate the working of magnetic sensors and micro electromechanical systems with a neat sketch. **[7M]**

MODULE – III

5. (a) Explain how a traditional mechanical gyro works with a simple illustration. **[7M]**
   (b) What is global positioning systems? Briefly explain the differential GPS concept with a diagram. **[7M]**
6. (a) Discuss the traffic collision avoidance system and collision avoidance system architecture in avionics system. **[7M]**
   (b) Describe the working of oceanic crossings with inertial sensors and global positioning systems with a neat sketch. **[7M]**

MODULE – IV

7. (a) Classify initial alignment and gyro compassing loops. Explain each of them with block diagram. **[7M]**

(b) List the navigation system that are used in an airplane and explain them with the help of flowchart. **[7M]**.

8. (a) Explain the inertial navigation system in aviation field with the example of air traffic control. **[7M]**

(b) What is marker system? Explain the typical flight management system (FMS) with neat sketch. **[7M]**

MODULE – V

9. (a) Demonstrate the avionics supplement precision flight controls and set the avionics console on a flat surface. **[7M]**

(b) Explain aircraft axis movement in relation with aircraft attitude with a neat sketch. **[7M]**

10. (a) Describe the airbus 380 model of (FBW) for different flight control systems. **[7M]**

(b) Explain the fly by wire system with an electronic interface of boeing 777 aircraft. **[7M]**

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