Reg. No. : ☐☐☐☐☐☐☐☐☐☐☐☐☐

Question Paper Code : 52538

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2019.

Seventh Semester

Aeronautical Engineering

AE 6701 — AVIONICS

(Regulation 2013)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are avionics? List any three avionics housed in the cockpit of an aircraft.

2. List out the need for avionics in civil and military aircraft.

3. Mention the topology and bit rate ARINC-429 with a diagram.

4. Draw a neat diagram of the message structure for ARINC-629.

5. What is HUD (Head-up display)?

6. What is HOTAS (Hands On Throttle-And-Stick)?

7. How are gyroscopes used in navigation?

8. What is GPS modernization?

9. How are air data systems used in an aircraft? List out the required parameters for flying.

10. Name the few disadvantages of an autopilot.

PART B — (5 × 13 = 65 marks)

11. (a) Explain the following :
    (i)   Digital computer
    (ii) Classification of digital computer
    (iii) Basic components of a computer system.

Or

    (b) Explain the following :
    (i)   Bus system
    (ii) Functional levels of bus system
    (iii) Types of computer bus.

12. (a) Describe the following elements of MIL-STD-1553B :
    (i)   Bus Controller (BC)   (5)
    (ii) Remote Terminal (RT)   (4)
    (iii) Bus Monitor (BM).   (4)

Or

    (b) Explain the transmission methods and word format of MIL-STD-1553B.

13. (a) Differentiate between CRT and LCD in tabular form. (atleast 7 differences)

Or

    (b) Write a short note on MFK (Multi Functional Keypad).

14. (a) What is INS (Inertial Navigation System)? Draw a neat block diagram of INS.

Or

    (b) Explain the three basic elements of GPS architecture with the help of a neat diagram.

15. (a) Draw the block diagram of a lateral auto pilot and explain the components.

Or

    (b) Explain the working principle of an autopilot system.

PART C — (1 × 15 = 15 marks)

16. (a) List out the differences between ARINC 429 and ARINC 629.

Or

    (b) Explain the seven avionics subsystems.

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