Reg. No. : E N G G T R E E . C O M

Question Paper Code : 70009

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2022.

Third Semester

Aeronautical Engineering

AE 3302 — AIRCRAFT SYSTEMS AND INSTRUMENTS

(Regulations 2021)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Classify the hydraulic systems major section.
2. What is accumulators? List the general types of it.
3. List the primary control surfaces in an aircraft.
4. Draw the basic fly-by-wire operation.
5. Write the types of fuel used in aircraft.
6. Explain the primary purpose of lubricant in an engine.
7. List the source for pressurization of cabin in reciprocating engine aircraft.
8. What are the negative effects due to ice formation on a aircraft?
9. List the navigation instruments.
10. What is absolute altitude?

PART B — (5 × 13 = 65 marks)

11. (a) Explain the pneumatic system with its components.

Or

(b) List the brake system in aircraft and explain the brake system using aircraft hydraulic system.

12. (a) Explain the push pull rod system with a neat sketch.

Or

(b) List the types of auto pilot system and explain auto pilot system with neat sketch in general.

13. (a) Describe the high-wing aircraft fuel system with fuel injection system.

Or

(b) Explain high tension magneto system with a neat figure.

14. (a) Explain the basic air cycle system in air-conditioning with a neat sketch.

Or

(b) What is the need for oxygen system? Explain continuous flow system with a neat sketch.

15. (a) What is altimeter? Explain its working principle with a neat diagram.

Or

(b) What is tachometer? Describe the mechanical tachometer in detail with a neat sketch.

PART C — (1 × 15 = 15 marks)

16. (a) How to check the operation of landing gear retraction mechanism in large aircraft?

Or

(b) Explain the operation of fly-by-wire system in an aircraft.