Reg.No.

Question Paper Code : X10030

B.E./B.Tech. DEGREE EXAMINATIONS, NOV/ DEC 2020 AND APRIL / MAY 2021

Fourth Semester

Aeronautical Engineering

AE 8402 - AIRCRAFT SYSTEMS AND INSTRUMENTS

(Regulations 2017)

Time: 3 Hours | Answer ALL Questions | Max. Marks 100

PART- A (10 x 2 = 20 Marks)

1. Distinguish between hydraulic and pneumatic systems.
2. What is the function of shock absorber?
3. What do you understand by conventional system?
4. List out the components of digital fly by wire systems.
5. What are the functions of a carburetor? In which way, aircraft piston engine carburetor is different from Automobile engine carburetor?
6. List out the requirement of a lubrication system used in aircraft engines.
7. List out the components of boot strap air cycle system.
8. What do you understand by Anti-icing and De-icing systems?
9. What is the advantage of using Mach meter over air speed indicator?
10. List out the Gyroscopic instruments used in Aircrafts.

PART- B (5 x 13 = 65 Marks)

11. a) Explain the working principle of extension of landing gear system with a neat sketch.

(OR)

b) With neat sketches, explain the types of shock absorbers used in Aircraft systems.

12. a) With neat sketch, explain operating principle of push rod system and explain the function of each components.

(OR)

b) Explain the following with a neat sketch each:
   i. Auto-pilot system. **(6)**
   ii. Active Control Technology. **(7)**

13. a) Explain the working principle of gas turbine engine fuel system with neat sketch.

(OR)

b) Explain the working principle of piston engine lubrication system with neat sketch.

14. a) Explain the working principle of basic air cycle system with a neat sketch.

(OR)

b) Explain the following with a neat sketch each:
   i. Fire extinguishing system. **(7)**
   ii. Smoke detection system. **(6)**

15. a) Explain the working principle of gyroscope instruments used in Aircrafts.

(OR)

b) Explain the following with a neat sketch each:
   i. Altitude indicator. **(6)**
   ii. Engine Instruments (any two). **(7)**

PART- C (1 x 15 = 15 Marks)

16. a) Explain the procedures to be followed during landing of an aircraft and explain the functions of systems and instruments during landing.

(OR)

b) Explain how a bank indicator is used during banking of an aircraft.