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Question Paper Code : 40520

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2018

Fourth Semester

Aeronautical Engineering

AE6402 – AIRCRAFT SYSTEMS AND INSTRUMENTS

(Regulations 2013)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions

PART – A

(10×2=20 Marks)

1. What is the purpose of relief valve in hydraulic system ?
2. What does the main landing gear provide ?
3. Name the three primary controls for an airplane.
4. What is auto pilot system ?
5. List any four advantages of having fuel injection system in piston engine used in aircraft.
6. What is meant by "HOT START" in turbojet engine ?
7. State the types of aircraft uses in 'vapour-cycle air-conditioning' system.
8. What is 'Purging' the oxygen system ?
9. What are the applications of 'ALTIMETER' as a flight instrument ?
10. State the importance of engine instruments.

PART – B

(5×13=65 Marks)

11. a) Explain the working principle of a simple hydraulic system with neat diagrams.

(OR)

- b) Describe the principle of operation of the two types of shock-absorbing landing gear commonly used.

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12. a) Explain with the help of an aircraft sketch about the fully powered flight control systems.

(OR)

b) With the sketches, explain the push pull rod system.

13. a) With an aid of a diagram, describe the working principle fuel system used for turbojet engine.

(OR)

b) Describe the starting procedure of piston engine aircraft.

14. a) Explain the operating principle of Fire Protection Systems with neat sketches.

(OR)

b) Explain Boost strap air cycle system operation with neat sketches.

15. a) With the aid of diagram, explain the working principle of accelerometer.

(OR)

b) Describe with sketch a mechanically operated tachometer by the use of a fly weight mechanism.

PART - C

(1×15=15 Marks)

16. a) Explain digital Fly by wire system.

(OR)

b) In what ways is the knowledge and understanding of aircraft instruments and instrument systems important for the technician ?