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18AE/AS55

Fifth Semester B.E. Degree Examination, Feb./Mar. 2022

Aircraft Systems and Instrumentation

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Describe about the primary and secondary flight controls with relevant diagrams. (12 Marks)
b. What is autopilot system? Explain with neat sketch how it works. (08 Marks)

OR

- 2 a. Describe redundancy. (05 Marks)
b. List out the advantages of fly by wire control over the conventional mechanical flight control system. (07 Marks)
c. Explain FBW and DFBW with necessary sketch. (08 Marks)

Module-2

- 3 a. With important components of hydraulic systems, explain its operation. (08 Marks)
b. What is PRSOV? Explain its working. (06 Marks)
c. Illustrate the functional aspects of brakes and steering. (06 Marks)

OR

- 4 a. Explain simple hydraulic system with neat sketch. Explain briefly about simplified B767 aircraft. (10 Marks)
b. With a neat sketch, explain typical high pressure pneumatic system. (10 Marks)

Module-3

- 5 a. Write a note on types of fuels used for cargo aircraft and combat airplanes. (07 Marks)
b. List the fuel system components and its workings. (08 Marks)
c. What are the lubricating systems used in aircraft engines? (05 Marks)

OR

- 6 a. What is the purpose of an aircraft fuel system? With neat sketch explain generalized fuel system of large transport aircraft. (12 Marks)
b. Explain the fuel system for piston engine. (08 Marks)

Module-4

- 7 a. Explain Eddy current de-icing system. (08 Marks)
b. Describe about the aircraft anti-icing system. (08 Marks)
c. Explain fire protection system. (04 Marks)

OR

- 8 a. With a relevant sketch explain briefly about pneumatic impulse de-icing system. (10 Marks)
b. Explain vapor cycle cooling system with relevant diagrams. (10 Marks)

Module-5

- 9 With a sketch, explain the working operations of the following instruments. (20 Marks)
i) Thermocouple ii) VSI iii) Tachometer iv) Pitot static system.

OR

- 10 a. Describe briefly about gyroscope. List out the properties of gyroscope. (10 Marks)
b. Differentiate between qualitative and quantitative displays in aircraft instrumentation. (10 Marks)

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