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10AE848

Eighth Semester B.E. Degree Examination, June/July 2015

Aircraft Systems and Instrumentation

Time: 3 hrs.

Max. Marks: 100

Note: Answer FIVE full questions, selecting at least TWO questions from each part.

PART – A

- 1 a. What is the need of flight control system? With neat sketch explain power assisted flight control system. (10 Marks)
- b. Stating the advantages and disadvantage explain fly – by – wire system with necessary sketch. (10 Marks)
- 2 a. List the advantage and disadvantages of hydraulic system used in aircraft. (05 Marks)
- b. With a neat sketch explain typical high pressure pneumatic system used in aircraft. (10 Marks)
- c. Write a note on : Hydraulic accumulator. (05 Marks)
- 3 a. What is the purpose of an aircraft fuel system? With neat sketch explain generalized fuel system of large transport aircraft. (10 Marks)
- b. Explain with neat sketch, Vane type fuel pump. (10 Marks)
- 4 a. Explain operation of vapour cycle cooling system with necessary sketch. (10 Marks)
- b. What are the consequences of information? With neat sketch explain hot air anti-icing system. (10 Marks)

PART – B

- 5 a. With neat sketches explain 'blind flying panel' and basic 'T' type of instrument grouping. (10 Marks)
- b. Write a note on:
 - i) Power plant instruments.
 - ii) Head up display system. (10 Marks)
- 6 Explain the following systems with neat sketches.
 - a) Pitot – static system.
 - b) Mach meter.
 - c) Vertical speed Indicator. (20 Marks)
- 7 a. Define the two fundamental properties of gyroscope and on what factors do these properties depend. (10 Marks)
- b. What is meant by 'earth rate and how the input axis of a gyroscope would have to be aligned to exhibit apparent drift equal to this rate? (10 Marks)
- 8 a. What is tachometer? With neat sketch explain a mechanical tachometer. (10 Marks)
- b. How are engine temperature measuring instruments classified? Explain how resistance is being measured using wheatstone bridge? (10 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42-8 = 50, will be treated as malpractice