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10AE848

Eighth Semester B.E. Degree Examination, Jan./Feb. 2021
Aircraft Systems and Instrumentation

Time: 3 hrs.

Max. Marks: 100

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

PART – A

- 1 a. With neat diagram, describe the operation of Push Pull Rod system. (10 Marks)
b. Write down the difference between power assisted and fully powered system. (04 Marks)
c. List down the primary and secondary flight control surfaces. (06 Marks)
- 2 a. Explain in detail about the Hydraulic system and its components used in large aircraft. (10 Marks)
b. Bestow details about shock struts and oleo struts used in landing gear. (10 Marks)
- 3 a. With a neat diagram, describe about the gravity feed and pressure feed fuel system. (10 Marks)
b. Discuss about the engine starting and ignition sequence with neat diagram. (10 Marks)
- 4 a. Describe about the vapour cycle cooling system with neat diagram. (10 Marks)
b. Write short notes on aircraft ice accretion and also give details about the different types of deicing and anti-icing system used to prevent the ice formation. (10 Marks)

PART – B

- 5 a. Discuss about the 'Blind Flying Panel' and 'Basic T arrangement' methods used for Aircraft Instrument Grouping. (10 Marks)
b. Write brief notes on:
i) VHF Omnidirectional Range
ii) Automatic Direction Finders. (10 Marks)
- 6 a. With a neat diagram, explain about
i) Air speed Indicator
ii) Vertical speed Indicator
iii) Mach meter. (12 Marks)
b. Describe in detail about AOA sensing and stall warning instruments. (08 Marks)
- 7 a. Explain the working principle of Ring Laser Gyroscope with neat diagram. (10 Marks)
b. With a neat diagram, discuss about the Direction Indicator and Turn and Bank Indicator. (10 Marks)
- 8 a. With a neat diagram, explain about the optical Tachometer used for Engine RPM measurement. (08 Marks)
b. Discuss about the Electromagnetic velocity pickup instrument and piezoelectric accelerometer used for measuring the vibrations. (12 Marks)

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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.