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10AE831

Eighth Semester B.E. Degree Examination, Dec.2019/Jan.2020

Flight Testing

Time: 3 hrs.

Max. Marks:100

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

PART – A

- 1 a. Explain the governing regulations (History of us airworthiness regulation) with a flow chart. (06 Marks)
b. Explain sources of errors in flight testing techniques. (14 Marks)
- 2 a. Explain the working principle of Radio telemetry. (14 Marks)
b. Define Thermocouples. Explain working principle of thermocouple of its application in flight testing measurement. (06 Marks)
- 3 a. Explain different methods for In-flight calibration method. (12 Marks)
b. Explain flight test technique for evaluating level flight performance in Jet Aircraft. (08 Marks)
- 4 a. Explain:
i) Sighting Bar Method
ii) Move theodolite method with neat sketches. (10 Marks)
b. Explain primary limitations on turning performance of an airplane. (10 Marks)

PART – B

- 5 a. Explain flight test methods for quantitative evaluation. (15 Marks)
b. Explain flight path stability measurement for flight testing. (05 Marks)
- 6 a. Explain steady heading side slip for determining lateral directional stability. (10 Marks)
b. Describe dutch roll mode and dutch roll flight test techniques. (10 Marks)
- 7 a. Explain Cooper – Harper Rating and scale with neat sketch. In short explain levels of flying qualities. (14 Marks)
b. Explain flight test procedure for flight rating to be carried out by pilots. (06 Marks)
- 8 a. Explain flight test method to determine stall characteristics and the (precautionary) safety considerations and the recovery technique for stall condition. (16 Marks)
b. Define :
i) Spin
ii) Flutter. (04 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.