

CBCS SCHEME

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18AE824

Eighth Semester B.E. Degree Examination, July/August 2022 Flight Testing

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. Define flight testing. What are different types of flight testing? (08 Marks)
b. Explain techniques for minimizing errors related to flight testing. (12 Marks)

OR

- 2 a. Explain pressure and temperature sensing devices used in flight testing. (12 Marks)
b. Describe Radio telemetry with neat sketch. (08 Marks)

Module-2

- 3 a. Explain in-flight airspeed calibration methods. (12 Marks)
b. Write short notes on rejected-take-off distances in flight testing. (08 Marks)

OR

- 4 a. Explain flight test method used for take-off and landing of an aircraft. (14 Marks)
b. Derive an expression for level flight performance flight testing using PIW-VIW method. (06 Marks)

Module-3

- 5 a. Describe flight test method for determining neutral point in longitudinal stability. (10 Marks)
b. Explain data reduction method in short period flight test. (10 Marks)

OR

- 6 a. Briefly explain flight test method for evaluating phugoid motion. (10 Marks)
b. Brief about flight path stability and speed stability. (10 Marks)

Module-4

- 7 a. Explain steady heading side slip method for determining lateral directional static stability. (10 Marks)
b. Write short notes on: i) Adverse yaw effect ii) Aileron reversal. (10 Marks)

OR

- 8 a. Discuss flight test technique for evaluating dynamic lateral directional stability. (08 Marks)
b. Describe the methods of improving longitudinal stability through tabs and aerodynamic balance. (12 Marks)

Module-5

- 9 a. Explain the Cooper-Harper pilot rating scale for handling qualities of aircraft. (10 Marks)
b. Explain the effect of various airframe components on spin. (10 Marks)

OR

- 10 a. Explain flight test procedure for Dive Testing. (12 Marks)
b. Discuss the following: i) Divergence ii) Flutter iii) types of spin. (08 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.