

CBCS SCHEME

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15AE831

Eighth Semester B.E. Degree Examination, Aug./Sept.2020 Flight Testing

Time: 3 hrs.

Max. Marks: 80

- Note: i) For Regular Students: Answer any FIVE full questions irrespective of modules.
ii) For Arrear Students : Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Write the governing requirements and regulations for the certification of aircrafts. (08 Marks)
b. Briefly explain the weighing and ballasting techniques. (08 Marks)
- 2 a. Explain onboard and ground based data acquisition system. (08 Marks)
b. Explain the temperature sensing devices used in flight testing. (08 Marks)

Module-2

- 3 a. Explain In-flight calibration methods. (08 Marks)
b. Derive an expression for level flight performance flight test using PIW-VIW method. (08 Marks)
- 4 a. Explain the test methods used for takeoff and landing of an aircraft. (08 Marks)
b. Write short note on rejected takeoff distances in flight testing. (08 Marks)

Module-3

- 5 a. Describe the flight test methods for determining the neutral points in longitudinal stability. (10 Marks)
b. Write short notes on static longitudinal stability test methods. (06 Marks)
- 6 a. Briefly explain the flight test method for evaluating the phugoid motion. (08 Marks)
b. Explain the data reduction methods in short period flight test. (08 Marks)

Module-4

- 7 a. Explain the flight test techniques for evaluating dynamic lateral directional stability. (10 Marks)
b. Briefly discuss steady heading side slip method for determining lateral directional static stability. (06 Marks)
- 8 a. Discuss the following: (i) Adverse yaw effect (ii) Aileron Reversal (08 Marks)
b. Give the regulations and test techniques in lateral stability. (08 Marks)

Module-5

- 9 a. Explain the Cooper-Harper pilot rating scale for handling qualities of an aircraft. (08 Marks)
b. Write the procedures of flight testing to evaluate handling quality of an aircraft. (08 Marks)
- 10 a. Explain the forces acting in a spin and factors affecting auto rotation. (10 Marks)
b. Discuss the following: (i) Flutter (ii) Buffet in a drive testing (06 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.