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Eighth Semester B.E. Degree Examination, July/August 2021 Flight Testing

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions.

- 1 a. Discuss about weighing and ballasting techniques. (05 Marks)
b. Enumerate the sources of errors in flight testing. (05 Marks)
c. Explain how to avoid and minimize errors in flight testing. (10 Marks)
- 2 a. What are pressure and temperature sensing devices? Explain a corresponding transducing techniques used for flight testing. (10 Marks)
b. Explain onboard and ground based data acquisition system in radio telemetry. (10 Marks)
- 3 a. Write short note on: i) Constant speed propeller, ii) Fixed pitch propeller. (10 Marks)
b. Explain the method of flight testing and data reduction methods for level turn performance in detail. (10 Marks)
- 4 a. Briefly discuss about range testing in a propeller driven aircraft. (10 Marks)
b. Enumerate the flight test methods used for determining take off distance in detail. (10 Marks)
- 5 a. Explain the flight test methods for determining the neutral points of stick fixed stability. (10 Marks)
b. Paraphrase the following static longitudinal stability test i) Speed stability ii) Flight path stability. (10 Marks)
- 6 a. Describe the flight test method and data reduction method for evaluating phugoid and short period mode. (10 Marks)
b. Explain the flight test methods for quantitative evaluation. (10 Marks)
- 7 a. Write the FAA regulations and test techniques in lateral-directional stability. (10 Marks)
b. Explain how the steady state heading sideslip is performed for evaluating lateral-directional stability. (10 Marks)
- 8 a. Discuss about the methods used for evaluate dutch roll flight testing. (10 Marks)
b. Explain the following in detail:
i) Adverse yaw effect (10 Marks)
ii) Aileron Reversal.
- 9 a. Explain about Cooper-Harper pilot rating scale for handling qualities of aircraft. (10 Marks)
b. Explain the forces acting in spin and factors affecting auto rotation. (10 Marks)
- 10 a. Write in detail about flutter, vibration and buffet in drive testing. (10 Marks)
b. Explain the flight test method for stall testing and safety considerations while performing stall maneuver. (10 Marks)
