

# CBCS SCHEME

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15AE831

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

Time: 3 hrs.

Max. Marks:80

**Note: Answer any FIVE full questions.**

- 1 a. Explain the purpose and planning in flight testing. (08 Marks)  
b. Discuss about avoiding and minimizing errors in flight testing. (08 Marks)
- 2 a. Discuss system planning in flight instrumentation. (08 Marks)  
b. Explain about pressure and temperature sensing devices used in flight testing. (08 Marks)
- 3 a. Write a note on : i) Constant speed propeller ii) Fixed pitch propeller. (08 Marks)  
b. Derive the endurance equation of propeller driven and Jet aircraft. (08 Marks)
- 4 a. Write a note on test methods used for takeoff and landing tests. (08 Marks)  
b. Derive the expression for takeoff ground run. (08 Marks)
- 5 a. Briefly explain the flight test methods for determining the neutral points of stick fixed stability. (08 Marks)  
b. Write explanation on static longitudinal stability tests  
i) Speed stability ii) Flight path stability. (08 Marks)
- 6 a. Explain the flight test method for evaluating the phugoid motion. (08 Marks)  
b. Write data reduction methods in short period flight test. (08 Marks)
- 7 a. Explain steady headings sideslip method for determining lateral directional static stability. (08 Marks)  
b. Describe Dutch roll, dutch roll technique and dutch roll data reduction. (08 Marks)
- 8 a. Explain flight test method for evaluating dynamic lateral directions stability. (08 Marks)  
b. Describe the methods of improving longitudinal stability through tabs and aerodynamic balance. (08 Marks)
- 9 a. Describe Coop-Harper scale pilot rating. (08 Marks)  
b. Describe the procedure for entering a spin and the procedure for recovery from a spin. (08 Marks)
- 10 a. What is Flutter? How is it different form vibration? (08 Marks)  
b. Describe what is buffeting. What is the effect of buffeting on aircraft? (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.