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**Eighth Semester B.E. Degree Examination, June/July 2019**  
**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. Briefly explain the purpose and scope of flight testing, mentioning types of flight testing. (10 Marks)
- b. Explain the sources of error related to flight testing and techniques for minimizing them. (10 Marks)
- 2 a. Explain system planning in flight test instrumentation. (06 Marks)
- b. Briefly describe the instruments used for measuring pressure and temperature in flight testing. (14 Marks)
- 3 a. Briefly explain the methods for in flight calibration of airspeed. (10 Marks)
- b. Explain the climb performance test methods and data reduction techniques. (10 Marks)
- 4 Explain the methods for determination of drag in flight, including the advantages and disadvantages of each method. (20 Marks)

**PART – B**

- 5 a. Explain the flight test methods for determining the stick fixed and stick free neutral points. (10 Marks)
- b. Explain the flight methods and data reduction techniques for evaluating the phugoid mode aircraft. (10 Marks)
- 6 a. Explain the steady-heading side slip method for determining lateral directional static stability. (10 Marks)
- b. Describe the Dutch roll motion of aircraft and the flight test methods and data reduction techniques for evaluating the Dutch roll mode. (10 Marks)
- 7 Explain the Cooper – Harper pilot Rating scale with the help of a neat flowchart and explain how a pilot assigns handling qualities level 1, 2 or 3 using the scale. (20 Marks)
- 8 a. Explain the flight test method for stall testing and the data requirement. (08 Marks)
- b. Explain the effects of various airframe components in spin, keeping the phases of spin in view. (12 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.