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10AE831

**Eighth Semester B.E. Degree Examination, Dec.2018/Jan.2019**  
**Flight Testing**

Time: 3 hrs.

Max. Marks:100

**Note: Answer any FIVE full questions, selecting  
at least TWO full questions from each part.**

**PART - A**

- 1 a. What are the different types of flight test that are carried out on aircraft? Explain each one. (10 Marks)
- b. What are the different tests that are carried on during design of a new aircraft, before the actual flight test? (10 Marks)
- 2 a. Describe flight test plan for a FBW aircraft. (08 Marks)
- b. What are the different critical data sensors that are required for the control law of a FBW aircraft? (04 Marks)
- c. What is an LVDT? Explain its function and the advantages. (08 Marks)
- 3 a. Describe the various methods of air data system calibration during flight test. (10 Marks)
- b. Derive the Breguet range estimation for a propeller driven aircraft. (10 Marks)
- 4 a. Describe the take-off procedure during flight test and the data reduction. (10 Marks)
- b. Explain how take-off distance is estimated. (10 Marks)

**PART - B**

- 5 a. Write the procedure to carry out slick fixed stability. (10 Marks)
- b. What is Phugoid? Explain the phenomena. (10 Marks)
- 6 a. What are the factors that control the directional stability of an aircraft and how directional stability is increased? (10 Marks)
- b. Which part is the primary contributor for lateral stability and explain. (10 Marks)
- 7 a. Explain Cooper-Harper scale for handling qualities. (10 Marks)
- b. How is the handling quality of a new development aircraft be accessed before the first flight test? (10 Marks)
- 8 a. What are the different types of spin? Explain. (10 Marks)
- b. What is the procedure to come out of spin? (04 Marks)
- c. What is mounted on aircraft during a spin trial? Explain the purpose of the unit. (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.