

# CBCS SCHEME

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15AE831

**Eighth Semester B.E. Degree Examination, November 2020**

## **Flight Testing**

Time: 3 hrs.

Max. Marks: 80

*Note: Answer any FIVE full questions irrespective of modules.*

### Module-1

- 1 a. Why is Flight Testing very important and give the different flight tests and their need. (08 Marks)
- b. What is flight planning? (04 Marks)
- c. What are the flight test tolerances and how to reduce the data uncertainty? (04 Marks)
- 2 a. What are the flight instruments carried on flight during flight test. (08 Marks)
- b. Describe Radio telemetry. (08 Marks)

### Module-2

- 3 a. Describe the methods of calibrating Air-data of a prototype aircraft. (06 Marks)
- b. Derive the endurance and range of a propeller aircraft. (05 Marks)
- c. How do you estimate the range of a jet aircraft given the fuel consumption of engine? (05 Marks)
- 4 a. Derive the take-off distance of an aircraft. (08 Marks)
- b. Describe the take-off procedure and explain how take-off is carried out if there is one engine failure. (08 Marks)

### Module-3

- 5 a. What are the conditions to be satisfied to declare that the aircraft is stable? (08 Marks)
- b. Describe the procedure to carryout a stick fixed stability of an aircraft. (08 Marks)
- 6 a. What is Phugoid? Is this dangerous to the aircraft? (08 Marks)
- b. What is data reduction during flight test? (08 Marks)

### Module-4

- 7 a. Describe Roll-Yaw coupling in an aircraft. (08 Marks)
- b. What is Adverse Yaw? (08 Marks)
- 8 a. What is Dutch Roll? Can it be eliminated? (08 Marks)
- b. Describe the phenomena Aileron reversal and how can it be overcome. (08 Marks)

### Module-5

- 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.