Reg. No.									

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

III SEMESTER B.TECH. (AERONAUTICAL ENGINEERING)

END SEMESTER EXAMINATIONS, JANUARY 2022

SUBJECT: : INTRODUCTION TO AEROSPACE ENGINEERING (AAE 2157)

REVISED CREDIT SYSTEM

(27/01/2022)

Duration: 1 Hour 15 minutes Max. Marks: 20

Instructions to Candidates:

- **Answer all the questions.**
- **Assume missing data if any.**

Q N	Question	Max marks	CO	BT
1A)	An airplane weighing 5000 lb is flying at standard sea level with a velocity of 200 mi/h (293.3 ft/s). At this velocity the L/D ratio is a maximum. The wing area and aspect ratio are 200 ft^2 and 8.5, respectively. The Oswald efficiency factor is 0.93. Calculate the total drag on the airplane.	(04)	CO2	Apply
1B)	Explain range and endurance of propeller powered aircraft with all necessary diagrams and equations.	(03)	CO3	Understand
1C)	Illustrate bielliptic orbital maneuver with all necessary diagrams and equations.	(03)	CO5	Analyze
2A)	Give a brief overview on airbreathing propulsion systems.	(04)	CO5	
2B)	Using standard atmosphere formulae, calculate the pressure at a geopotential altitude of 5 km (T = 15 – 0.0065h). Use T in Kelvin.	(03)	CO1	Apply
2C)	What is the application of dihedral configuration in aircrafts.	(03)	CO4	Understand