

Name:	
Enrolment No:	

UPES
Supplementary Examination, Dec, 23

Course: Introduction to Aerospace Engineering	Semester: III
Program: B.Tech ASE	Time 03 hrs.
Course Code: ASEG2004	Max. Marks: 100

SECTION A

S. No.		Marks	CO
Q1.	Briefly state major contributions of Percy Pilcher in development of aeronautical engineering.	4	CO1
Q2.	Define lift and hence discuss the phenomenon behind its generation.	4	CO2
Q3.	List various basic instruments of an aircraft.	4	CO3
Q4.	Explain the role of: (i) Turn and bank indicator (ii) Altimeter	4	CO3
Q5.	Compare chemical rocket propulsion with electric rocket propulsion.	4	CO4

SECTION B

Q6.	Outline the contribution of Sir George Cayley in the development of aeronautical engineering.	10	CO1
Q7	Emphasis on the importance of wing twist. Explain geometric and aerodynamic wing twist. OR Explain the nomenclature of NACA 5 digit and 6 digit series. Based on the nomenclature, calculate the properties of NACA 23115 and NACA 61 ₂ -320.	10	CO2
Q8	Discuss various materials used in modern day aircrafts and justify their selection.	10	CO3
Q9	With the help of neat sketch, explain various components and working of a turbofan engine.	10	CO4

SECTION-C

Q 10	Classify the air drag in various categories. Explain the physics behind the generation of each type of drag.	20	CO2
Q 11	With the help of neat sketch, explain various components and working of a solid propellant rocket engine. Compare solid, liquid and hybrid propellant rocket engine. OR With the help of neat sketch, explain various components and working of a ramjet engine. Compare ramjet with scramjet engine.	20	CO4