

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- SEMESTER-III EXAMINATION – WINTER 2025****Subject Code:3130108****Date:12-12-2025****Subject Name: Fundamentals of Aeronautical Engineering****Time:10:30 AM TO 01:00 PM****Total Marks:70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

MARKS

Q.1	(a) Define Airfoil and give its nomenclature with figure.	03
	(b) Discuss how lift is generated over a wing.	04
	(c) Explain the axes, moments and forces acting on the airplane.	07
Q.2	(a) What is UAV, MAV and Spacecraft?	03
	(b) Discuss the components and system of UAV.	04
	(c) Classify Air vehicles in detail.	07
	OR	
	(c) Explain phases of flight with figure.	07
Q.3	(a) Define Flap. Classify them.	03
	(b) Discuss different layers of the Atmosphere.	04
	(c) Name Integrated Control Surfaces and explain each of them.	07
	OR	
Q.3	(a) Explain the working principle of Rocket Engine.	03
	(b) Classify Air breathing Engines and Non Air breathing Engines.	04
	(c) Explain the construction and working of Turbofan Engine with its advantages and disadvantages.	07
Q.4	(a) Explain Semi-Monocoque Fuselage with figure.	03
	(b) Define Wing. Discuss internal component structure of wing with figure.	04
	(c) Explain the construction and working of Turbojet Engine with its advantages and disadvantages.	07
	OR	
Q.4	(a) Write short note on Sweptback Wing.	03
	(b) Define coefficient of lift, coefficient of drag and coefficient of moment.	04
	(c) Explain Critical Mach Number and Drag Divergence Mach Number with figures.	07
Q.5	(a) Explain ILS system.	03
	(b) Differentiate between primary and secondary radar systems.	04
	(c) Explain VOR navigation in detail.	07
	OR	
Q.5	(a) Define Landing Gear. Classify them.	03
	(b) Write a short note on Empennage.	04
	(c) Classify Rocket Engine and discuss each of them.	07
