

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-III EXAMINATION – SUMMER 2025

Subject Code:3130108

Date:29-05-2025

Subject Name: Fundamentals of Aeronautical Engineering

Time:02:30 PM TO 05:00 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) List different phases of flight.	03
(b) Draw neat sketch of an Airfoil with Nomenclature.	04
(c) Write a note on Critical Mach Number, Critical Pressure Coefficient and Drag Divergence Mach Number.	07
Q.2 (a) Discuss the working of a propeller.	03
(b) Differentiate between Primary and Secondary Radar.	04
(c) Write a short note on TCAS and VORTAC.	07
OR	
(c) Differentiate between fixed and retractable landing gear.	07
Q.3 (a) Discuss: Flaperon.	03
(b) Discuss the merits and demerits of swept wing.	04
(c) Explain Instrument landing system with diagram.	07
OR	
Q.3 (a) Discuss hypersonic flow.	03
(b) Discuss the circumstances leading to an airfoil stalling.	04
(c) Explain in brief: Subsonic, Transonic and Supersonic flow	07
Q.4 (a) Explain Ramjet engine.	03
(b) Discuss the constructional features of conventional aircraft wing.	04
(c) Explain with neat diagram: liquid propellant rocket engine	07
OR	
Q.4 (a) What is Pressurization of fuselage?	03
(b) Differentiate True Monocoque and semi-Monocoque structure design.	04
(c) Explain with neat diagram: solid propellant rocket engine	07
Q.5 (a) Explain in brief: scramjet engine	03
(b) Explain Three axis of stability of aircraft with appropriate diagram.	04
(c) Write a note on DME and GPS.	07
OR	
Q.5 (a) List the different regimes of atmosphere.	03
(b) Explain all leading edge lifting devices.	04
(c) Draw the neat diagram of a turbojet engine with nomenclature.	07
