

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER- III EXAMINATION – SUMMER 2020

Subject Code: 3130108

Date: 28/10/2020

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.

		Marks
Q.1	(a) Discuss 3 axis of aircraft with neat sketch.	03
	(b) Explain four forces acting upon an aircrafts.	04
	(c) Draw an isometric view of any fix wing aircraft and explain function of primary components like fuselage, wings, tail plane, undercarriage etc.	07
Q.2	(a) Only draw airfoil with nomenclature.	03
	(b) Explain Critical mach number and Drag Divergence Mach number.	04
	(c) Explain importance of sweep back wing.	07
	OR	
	(c) Define term -Subsonic, Transonic, Supersonic, Hypersonic.	07
Q.3	(a) Explain function of ribs and spar in aircraft structure.	03
	(b) Differentiate between fixed and retractable landing gear.	04
	(c) Explain function of all three primary control surfaces with neat sketch.	07
	OR	
Q.3	(a) Define terms- High wing, Low wing and Mid wing aircraft.	03
	(b) Differentiate between bulkhead and formers with neat sketch.	04
	(c) Explain functions of longerons, skin, truss, gusset in aircraft structure with neat sketch.	07
Q.4	(a) Explain function of propeller in aircraft.	03
	(b) Only define four strokes of IC engine.	04
	(c) Classify IC engines used in aircrafts with respect to arrangement of cylinders.	07
	OR	
Q.4	(a) Shortly differentiate between liquid propellants and solid propellants.	03
	(b) Explain function of trim tabs of all primary control surfaces.	04
	(c) Explain how gas turbine jet engine works?	07
Q.5	(a) Explain application of radio altimeter.	03
	(b) Explain function of airborne weather radar.	04
	(c) Differentiate between primary and secondary radar systems.	07
	OR	
Q.5	(a) Why DME is collocated with glide slope and not with localizer.	03
	(b) Explain application of VOR in air navigation.	04
	(c) Draw and explain applications of localizer, glide slope, marker beacons and DME in ILS.	07
