Seat No.:	Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-IV EXAMINATION – WINTER 2015

	•	t Code: 140104 Date:06/01/2016	
Ti	me: (structi 1 2	t Name: Fundamentals of Aeronautics 02:30pm to 05:00pm Total Marks: 70 ions: Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks.	
Q.1	(a)	What is Mach number? Explain Critical pressure of flight.	07
	(b)	How lift is produced? Write appropriate equations to find out lift produced.	07
Q.2	(a)	What is Stalling, when does it occurs? Explain briefly with the help of graph. Write its effects.	07
	(b)	Explain Swept wing performance. Use correct figure to illustrate the performance of of swept wing fitted on aircraft.	07
		OR	
	(b)	Derive Equation of motion.	07
Q.3	(a)	Explain operation of Jet engine stage wise. What system is used to avoid icing at the induction section?	07
	(b)	Draw a neat figure of an aircraft and explain classify its parts. Describe usage of each parts.	07
		OR	
Q.3	(a)	Write configuration and types of Landing gears used in aircraft. Explain function of strut.	07
	(b)	Describe wing structure of an aircraft with main structural parts. Give different types of wings based on spars used.	07
Q.4	(a)	Explain types of fuselages. Write fuselage structure of a transport aircraft. Why transport aircraft passengers compartment is pressurized?	07
	(b)	Explain operation of Ramjet engine in brief with Different stages and neat figure. Initially how it is used for thrusting?	07

Q.4	(a)	Write operation of reciprocating engine and its drawback. Explain operation of different components. Draw cycles figure. In which cycle thurs is provided?		
	(b)	Enlist different types of jet turbine engines with their differences. Why turbo shaft engine is preferred for helicopter?	07	
Q.5	(a)	What is STANDARD atmosphere? Give meaning of different regimes of atmosphere.	07	
	(b)	Explain basic aerodynamics. How it is employed on aircraft? How does shape matters in aerodynamics?	07	
	OR			
Q.5	(a)	Explain airfoil nomenclature with a neat figure. Clearly define airfoil, chord, chord line, leading and trailing edge and span.	07	
	(b)	Describe three axis and four forces acting on an aircraft with figure.	07	
