Sea	ıt No.:	Enrolment No	
		GUJARAT TECHNOLOGICAL UNIVERSITY	
		BE - SEMESTER-IV • EXAMINATION – WINTER • 2014	
	U	Code: 140104 Date: 02-01-2015	
	U	Name: Fundamentals of Aeronautics	
		2:30 pm - 05:00 pm Total Marks: 70	
Inst	tructio 1	ns: Attempt all questions.	
		Make suitable assumptions wherever necessary.	
	3.		
Q.1	(a)	Name different types of gas turbine engines. Explain any one in details with figure.	07
	(b)	Describe different methods of mounting wings on fuselage with figure. Explain structure of transport aircraft wing.	07
Q.2	(a)	Describe axis of aircraft. How angle of attack is important during take off and flight operation of an aircraft?	07
	(b)	Describe nomenclature of aerofoil. How aerofoil is generates lift?	07
	(L.)	OR	07
	(b)	Derive equation for thrust required for level flight. Describe in brief.	07
Q.3	(a) (b)	"Flaps operation is different from air brake" Prove this statement. Define load factor, Limit load factor for classification of aircraft and Ultimate load factor.	07 07
		OR	
Q.3	(a) (b)	Show the comparison of C_L - α curve for symmetric and cambered airfoil. Explain thrust required for straight and level flight with vector diagram.	07 07
Q.4	(a) (b)	Explain Climbing Flight. List stresses imposed on aircraft. Define load factor, limit load, and landing load of aircraft.	07 07
		OR	
Q.4	(a) (b)	Explain mach number, critical mach number and ultimate load. Explain rocket engine and derive rocket equation.	07 07
Q.5	(a) (b)	Write a note on Ramjet engine with a neat sketch. Describe operation of primary controls with figure. How axis are part of this function.	07 07
		OR	
Q.5	(a) (b)	Explain Gliding Flight. Enlist types of jet engine and explain Turbojet engine with a neat sketch.	07 07
