Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- IVth SEMESTER–EXAMINATION – MAY/JUNE- 2012

Subject code: 140104 **Date: 31/05/2012**

Subject Name: Fundamentals of Aeronautics

Time: 10:30 am – 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.**

Q.1	(a)	Draw and explain geometry of cross section of wing with nomenclature.	07
	(b)	As per ISA conditions what are the physical parameters of atmosphere on sea level? What changes are taken place with change in heights?	07
Q.2	(a)	Explain four types of propellers used in aircraft?	07
	(b)	Define "Rate of climb", "Gliding flight", "Time of Climb", "Range of aircraft", "Range", "Endurance", and "Monocoqe Fuselage Structure".	07
		OR	
	(b)	What do you understand by "Mach Number"?	07
Q.3	(a)	What do you understand by "Propulsion system"? What is the application of this system in aircraft?	07
	(b)	Explain "Ram Jet Engine" with neat sketch.	07
		OR	
Q.3	(a)	What is "aerofoil stalling"? Explain by $C\ell$ - α curve.	07
	(b)	With neat sketch explain "Semi monocoqe fuselage structure".	07
Q.4	(a)	Give a short note on "aircraft under carriage".	07
	(b)	Differentiate between "retractable landing gears." and "fixed landing gears".	07
		OR	
Q.4	(a)	How many forces take place over flying aircraft? Explain briefly.	07
	(b)	With neat sketch explain semi monocoqe wing structure.	07
Q.5	(a)	Explain cycle of gas turbine engines with neat sketch.	07
	(b)	Differentiate between "rotary engines" and "reciprocating engines" used in aircraft.	07
		OR	
Q.5	(a)	Give a short note on "rocket engines used in aircraft".	07
	(b)	How lift is produced along cross section of the wing? Explain with neat sketch.	07

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