Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

B.E. Sem-III Examination December 2009

Subject code: 130104

Subject Name: Introduction of Profession

Date: 31 /12 /2009 **Time: 11.00 am – 1.30 pm**

Instructions: **Total Marks: 70**

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks**

Q.1	**(a)**	With help of dimensional analysis derive expression for coefficient of lift.	**05**
	(b)	What do you understand by AVIONICS?	**04**
	(c)	Explain the four stroke reciprocating engine.	**05**
Q.2	**(a)**	What are the common characteristics of the Air-craft structures? And write common properties required for Air-craft materials	**07**
	(b)	Explain working principle of Jet propulsion.	**07**
		OR	
	(b)	With help of neat sketch explain working of Pulse-jet engine.	**07**
Q.3	**(a)**	Compare reciprocating engines and jet engines.	**07**
	(b)	Derive hydrostatic equation and explain its significance and application.	**07**
		OR	
Q.3	**(a)**	With help of neat sketch explain working of Turbo-fan engine.	**07**
	(b)	Explain utilities and working principle of pitot tube and pitot static tube with help of suitable diagram.	**07**
Q.4	**(a)**	Draw sketch of wing construction and explain functions of its structural elements.	**07**
	(b)	With help of block diagram explain the function of a Radio transmitter and receiver.	**04**
	(c)	Briefly explain the silent features of VHF Omni range (VOR).	**03**
		OR	
Q.4	**(a)**	On the basis of bending strength point of view explain why I-section is more suitable for aircraft structures to take bending load?	**04**
	(b)	Draw sketch of fuselage construction. And explain functions longarons and bulkhead.	**03**
	(c)	What are the operational facilities provided by Air-Traffic Management service at an airfield? And briefly explain different elements of an Instrument Landing System (ILS).	**07**
Q.5	**(a)**	Explain Airfoil nomenclature with suitable diagram. And define lift, drag, pressure and coefficient of pressure.	**08**
	(b)	With help of sketch explain about monocoque and semi-monocoque constructions.	**06**
		OR	
Q.5	**(a)**	What are the different types of altitudes in ISA? Briefly explain pressure, temperature and density altitudes.	**08**
	(b)	With help of example illustrates that a thin walled structure can be made into a very efficient torsion member.	**06**

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