Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII • EXAMINATION – SUMMER • 2014

Subject Code: 170104 **Date: 29-05-2014**

Subject Name: Rocket & Missile Configurations Design

Time: 02:30 pm - 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.**

Q.1	**(a)**	Classify the missiles and explain with neat sketch.	**07**
	(b)	Write a short note on Pressurization system.	**07**
Q.2	**(a)**	Explain the effect of Aspect Ratio on the wing of missile.	**07**
	(b)	Write a short note on liquid propellant combustion process.	**07**
		OR	
	(b)	Classify the Conical and ogival fore body with neat sketch.	**07**
Q.3	**(a)**	Define Friction drag, Pressure drag, Induce drag, Interference drag.	**07**
	(b)	Explain Boattail with neat sketch.	**07**
		OR	
Q.3	**(a)**	Write solid propellant characteristics.	**07**
	(b)	Classify Aerodynamic Launching problems.	**07**
Q.4	**(a)**	Write liquid propellant characteristics.	**07**
	(b)	Write properties of solid propellant.	**07**
		OR	
Q.4	**(a)**	Define with neat sketch Re-entry body design consideration.	**07**
	(b)	Write a short note on rocket engine.	**07**
Q.5	**(a)**	Write a short note on Propellant loading tolerance.	**07**
	(b)	What is outage? Derive relation between MR_L and MR_B for volume verses mass loading.	**07**
		OR	
Q.5	**(a)**	Write a short note on Optimum Bias.	**07**
	(b)	Classify with details Loading measurement and control.	**07**

****