Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII • EXAMINATION – WINTER • 2014

Subject Code: 170104 **Date: 27-11-2014**

Subject Name: Rocket and Missile Configurations Design

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)**	Define ullage? Explain pressurization system with neat sketch.	**07**
	(b)	Explain the effects of Aspect ratio on the wing of missile.	**07**
Q.2	**(a)**	What are the major considerations of good load controls in propellant loading tolerance? Explain in brief.	**07**
	(b)	Write a short note on elimination of the Geysering effect in missiles.	**07**
		OR	
	(b)	Explain pressure surge in propellant system feed line flows.	**07**
Q.3	**(a)**	Explain solid propellant rocket engine with neat sketch.	**07**
	(b)	Explain liquid propellant properties in details.	**07**
		OR	
Q.3	**(a)**	Explain liquid propellant rocket engine with neat sketch.	**07**
	(b)	Write a short note on desirable physical properties for liquid propellant.	**07**
Q.4	**(a)**	Explain advantages and disadvantages of wing control, Canard control and Tail control.	**07**
	(b)	Write a short note supersonic wing planforms.	**07**
		OR	
Q.4	**(a)**	What is outage? Explain calibrated system outage control.	**07**
	(b)	What are the basic problems must be considered in propellant tank outlet design? Explain in details.	**07**
Q.5	**(a)**	Explain with neat sketch Long range cruise trajectory.	**07**
	(b)	What is cruciform? Explain with neat sketch.	**07**
		OR	
Q.5	**(a)**	Relation of maneuverability and static stability margin for maneuvering flight.	**07**
	(b)	Explain with neat sketch Boost sustain trajectory.	**07**

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