

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII (NEW) EXAMINATION – WINTER 2021****Subject Code:3170104****Date:17/12/2021****Subject Name:Rocket and Missile Technology****Time:10:30 AM TO 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.
4. Simple and non-programmable scientific calculators are allowed.

		MARKS	
Q.1	(a) What is the difference between Rocket and Missile?	03	
	(b) What is friction drag, pressure drag and induced drag?	04	
	(c) Explain Aspect Ratio for Rockets & Missiles in brief.	07	
Q.2	(a) What are the benefits of Mid sections?	03	
	(b) Explain air to air missile with neat sketch.	04	
	(c) Derive equation of velocity of propagation of pressure pulse line.	07	
OR			
Q.3	(c) Write a short note on Organic oxidizers for solid propellant.	07	
	(a) Differentiate Solid and Liquid propellant.	03	
	(b) What are the different zones of liquid propellant combustion process?	04	
Q.3	(c) Write a short note on Organic oxidizers for solid propellant.	07	
	(a) Differentiate Liquid and Cryogenic propellants.	03	
	(b) Explain few desired physical properties of liquid propellant?	04	
Q.3	(c) List out good load controls for propellant loading tolerance, and explain density variations.	07	
	(a) What are the different types of Hemispherical Forebodies?	03	
	(b) Write a short note on Propellant tank outlet design with neat sketch.	04	
Q.4	(c) Draw and explain typical base Pressure vs Mach number graph.	07	
	OR		
	(a) What is Interference Drag?	03	
Q.4	(b) What are the various wing planforms?	04	
	(c) Explain Monowing for maneuvering flight.	07	
	(a) Classify the different types of missiles.	03	
Q.5	(b) What are parallel and normal forces acting on Rocket/Missile?	04	
	(c) Write a short note on long range ballistic trajectory.	07	
	OR		
Q.5	(a) What are the different sections of missile?	03	
	(b) What do you mean by long range cruise trajectory?	04	
	(c) Explain the functions of components of Missile.	07	
