Seat No.: _____ Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII (NEW) EXAMINATION – WINTER 2018

Subject Code: 2170104 **Date: 29/11/2018**

Subject Name: Rocket & 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.**

Q.1	(a)	What is the difference between Rocket and Missile?	03
	(b)	Explain air to air missile with neat sketch.	04
	(c)	Explain long range cruise trajectory with neat sketches.	07
Q.2	(a)	What is outage? Derive fuel outage fraction in terms of mixture ratio burned (MR_B).	03
	(b)	What is feed line flow?	04
	(c)	Explain Solid propellant Rocket Motor with neat sketch.	07
		OR	
	(c)	Explain propellant inventory.	07
Q.3	(a)	Explain level sensing.	03
	(b)	Derive equation of velocity of propagation of pressure pulse line.	04
	(c)	Explain propellant loading tolerances.	07
		OR	
Q.3	(a)	What are the different methods of Trajectory determination?	03
	(b)	Explain tank calibration.	04
	(c)	Derive Linearized Theory with basic assumptions.	07
Q.4	(a)	What are the different types of Hemispherical Forebodies?	03
	(b)	Explain Aspect Ratio for Rockets & Missiles in brief.	04
	(c)	Write difference between Ogival and Hemispherical noses.	07
		OR	
Q.4	(a)	What are the Advantages of Boat tailing?	03
	(b)	Explain Boost Sustain Trajectory in brief.	04
	(c)	Write a short note on Conical forebody.	07
Q.5	(a)	What is Interference Drag?	03
	(b)	Write a short note on Stall Speed.	04
	(c)	Explain Monowing for maneuvering flight.	07
		OR	
Q.5	(a)	Explain difference between Subsonic & Supersonic characteristics for Ogival nose.	03
	(b)	Explain different Supersonic Wing planforms.	04
	(c)	Draw and explain typical base Pressure vs Mach number graph.	07

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