

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VII(NEW) EXAMINATION – SUMMER 2019****Subject Code:2170104****Date:27/05/2019****Subject Name:Rocket & Missile Technology****Time:02:30 PM TO 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) What are the different types of Missiles? **03**  
(b) Differentiate between Conical, Ogival & Hemispherical forebodies. **04**  
(c) Explain the functions of components of Missile. **07**
- Q.2** (a) What is Stealth technology? Explain its function. **03**  
(b) Differentiate Power series and Parabolic series noses. **04**  
(c) Write a short note on Conical flow theory using comparative plots of Mach number with other parameters like nose angle, shock angle and pressure coefficient. **07**
- OR**
- (c) Write a short note on Ogival forebody with prior conclusions. **07**
- Q.3** (a) What are the Disadvantages of Boattail? **03**  
(b) What is Interference Drag? **04**  
(c) Explain Ackeret/Linearized Theory. **07**
- OR**
- Q.3** (a) What are the different Wing planforms? **03**  
(b) Explain the Subsonic characteristics of Airfoil. **04**  
(c) Write a short note on different Aerodynamic controls. **07**
- Q.4** (a) Mention different types of Missile trajectories. **03**  
(b) What are the methods for finding Missile Trajectories? **04**  
(c) Explain Volume Concept. **07**
- OR**
- Q.4** (a) Differentiate Liquid and Cryogenic propellents. **03**  
(b) Explain few desired physical properties of liquid propellant? **04**  
(c) Explain Mass loading concept. **07**
- Q.5** (a) What is Outage? **03**  
(b) List out good load controls for propellant loading tolerance. **04**  
(c) Write a short note on Graphical Method for determining Boost glide trajectory. **07**
- OR**
- Q.5** (a) Explain Calibrated system outage control. **03**  
(b) Write a short note on Propellant tank outlet design with neat sketch. **04**  
(c) Write a short note on Organic oxidizers for solid propellant. **07**

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