

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BE - SEMESTER– VII (OLD) • EXAMINATION – WINTER 2017**

**Subject Code: 170104****Date: 15-11-2017****Subject Name: Rocket & Missile Configurations Design****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 Boattail? Explain with neat sketch **07**  
(b) What happen when flow past over a wedge and cone? Explain with neat sketch **07**
- Q.2** (a) Explain ogival forebody **07**  
(b) What is Missile? Explain with neat sketch different types of missiles **07**
- OR**
- (b) Explain Mid section for airframe components **07**
- Q.3** (a) Explain Induced drag and Parasite drag. **07**  
(b) Working principle of aerodynamics controls. Explain with neat sketch **07**
- OR**
- Q.3** (a) Explain Boost Glide Trajectory with neat sketch. **07**  
(b) Explain free flight dispersion. **07**
- Q.4** (a) Explain Elimination of the Geysering effect in missiles. **07**  
(b) Explain Aging and useful life for solid propellants. **07**
- OR**
- Q.4** (a) What do you mean by base pressure? Explain in your words. **07**  
(b) Which are the desired physical properties of liquid propellant? **07**
- Q.5** (a) Explain with neat sketch Wing control and Canard Control. **07**  
(b) Explain with neat sketch design and control for missile configuration design **07**
- OR**
- Q.5** (a) Make a Relationship between mixture ratio loaded and mixture ratio burned for volume verses mass loaded **07**  
(b) Explain Hemispherical forebody **07**

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