

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

Subject code: 180103

Date: 02/11/2017

Subject Name: Space Dynamics

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) Explain Hohmann transfer ellipse. **07**
(b) Explain Gravitational Potential Energy. **07**

- Q.2** (a) Write a short note on Escape Velocity. **07**
(b) Write a note on “The two body problem”. **07**

OR

- (b) Write a note on Newton’s Law of Gravitation in detail. **07**

- Q.3** (a) With neat sketches explain primary phases of space mission. **07**
(b) Explain mechanics of Circular orbit. Also list important points for the same. **07**

OR

- Q.3** (a) Write a short note on Elliptic Orbits. **07**
(b) Write a short note on Deep Space. **07**

- Q.4** (a) Define Space. Classify Space Vehicles. **07**
(b) Explain India’s Mars Orbital mission in your words. **07**

OR

- Q.4** (a) Derive general equation of motion for a vehicle entering the atmosphere. **07**

- Q.4** (b) Write a short note on Kepler’s laws in detail. **07**

- Q.5** (a) Derive Orbit equation. **07**
(b) Explain different types of entry paths. **07**

OR

- Q.5** (a) Explain Entry heating. Also obtain an equation for aerodynamic heating rate. **07**

- (b) Explain different Space vehicle trajectories. **07**
