

**B.Tech. AEROSPACE ENGINEERING
(BTAE)**

Term-End Examination

00414

June, 2017

BAS-025 : SPACE DYNAMICS

Time : 3 hours

Maximum Marks : 70

Note : Attempt any **seven** questions. All questions carry equal marks. Use of scientific calculator is permitted.

1. Explain the factors behind perturbation of satellite's orbit and its position. 10
2. Describe in detail all the features of entry trajectory of a ballistic missile. 10
3. Explain three types of entry paths possible while the spacecraft enters the atmosphere. Also describe entry corridor. 10
4. Derive an expression for the escape velocity of a satellite from Earth. 10

5. (a) Discuss the salient features of Interplanetary mission vis-a-vis Earth satellite mission or Lunar mission.
- (b) Explain the geosynchronous satellite. 5+5
6. Explain the general aspects of satellite injection. 10
7. Discuss the stability of motion near the liberation points. Make use of sketches and examples. 10
8. Describe the transfer orbits and hence define Hohmann transfer ellipse. Briefly explain the manoeuvres carried out while launching a spacecraft to the moon. 10
9. Write short notes on any **two** of the following : 2×5=10
- (a) Time of Flight
- (b) Re-entry Phase
- (c) Trajectory Geometry
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