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BAS-025

00319

B.Tech. IN AEROSPACE ENGINEERING (BTAE)

Term-End Examination

June, 2013

BAS-025 : SPACE DYNAMICS

Time : 3 hours *Maximum Marks : 70*

Note : *Attempt **any seven** questions. All questions carry equal marks.*

1. Discuss the influence of ratio of injection and re-entry radius, ρ_i and flight path angle, γ_1 on the angular range of a missile. **10**

2. Explain the launch site and launch azimuth velocity penalty by making use of a plot. **10**

3. Derive an expression for the escape velocity of a satellite from earth. **10**

4. Derive Lagrange - Jacobi identity. **10**

5. What is the difference between Keplerian orbit's and Perturbed Keplerian orbit's ? **10**

6. Prove that optimum interplanetary trajectory is a heliocentric ellipse, tangential to both the earth's orbit and to the target planet's orbit. **10**

7. Explain the difference between chemical rocket propulsion and electrical rocket propulsion system used for Space-craft flights, with suitable diagrams. **10**

8. Explain the following in brief :

   (a) Axis of the ecliptic **5**

   (b) Vernal equinox Autumnal equinox. **5**

9. (a) Discuss the salient features of interplanetary mission vis - a - vis earth satellite mission or lunar mission. **6**

   (b) Explain the geosynchronous satellite. **4**