

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

Term-End Examination

00805

December, 2014

BAS-025 : SPACE DYNAMICS

Time : 3 hours

Maximum Marks : 70

Note : Question no. 1 is **compulsory**. Attempt any **six** from questions no. 2 to 9.

1. Explain the following terms with the help of neat diagrams : $5 \times 2 = 10$
 - (i) Celestial Sphere and The Ecliptic
 - (ii) Reference frames
 - (a) Earth Centred Inertial
 - (b) Earth Centred Earth Fixed Rotating
 - (iii) Liberation points with location for Earth Moon system
 - (iv) Escape Velocity
 - (v) Capture Radius

2. What are the phases of a ballistic missile ? Explain with the help of a neat diagram. 10

3. What is optimal flight for a ballistic missile ? How can it be estimated using graphical technique ? 10

4. Explain classical elements of orbital with neat sketches. 10
 5. Discuss different types of launch vehicle ascent trajectories and compare them. 10
 6. Explain the source of perturbations for an earth satellite system. 10
 7. Describe Encke's method for special perturbation. 10
 8. Explain Hohmann trajectory for interplanetary transfer. 10
 9. Discuss trajectory about the target planet for an interplanetary transfer mission. 10
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