(b) Explain the following (any *two*) : **10**

(i) Charged Particle Motion

(ii) Magnetic Mirror

(iii) Radiation Effects

(iv) Our Local neighbourhood.

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B. Tech. EXAMINATION, May 2017

(Seventh Semester)

(B. Scheme) (Re-appear Only)

AER

AER-403-B

SPACE DYNAMICS

Time : 3 *Hours*] [*Maximum Marks :* 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. (a) Explain the American and Russian Campaigns for space travel. **7**

(b) Explain the utilization of space shuttle in space engineering and how does it work ? **8**

2. (a) Explain principle of conservation of energy and momentum. **10**

(b) Explain Newton's law in particle dynamics. **5**

Unit II

3. (a) Derive the Hoffmann orbital transfer formula mechanism. **6**

(b) Explain the law thrust orbit transfer mechanism. **9**

4. (a) Explain Energy and Angular Momentum equation in the two body problems and derive these equation also. **10**

(b) Explain the orbit equation and Kapler's laws in two body problem. **5**

Unit III

5. (a) Explain the Euler's equation in Regid Body Dynamics. **7**

(b) Derive the energy principle and angular momentum equation in regid body Dynamic. **8**

6. (a) Derive the moment of momentum of a rigid body. **8**

(b) Illustrate the general torque free rigid body. **7**

Unit IV

7. (a) Explain the concept of Re-entry Dynamics in the space dynamics. **7**

(b) Explain the concept of Aero-braking and Lifting Re-entry in the space Dynamics. **8**

8. (a) Explain the concept of Atmosphere and in which sphere aircraft fly ? **5**