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Roll No. ....

**G-342**

**B. Tech. EXAMINATION, Dec. 2018**

(Seventh Semester)

(B. Scheme) (Main & Re-appear)

(AER)

AER403B

SPACE DYNAMICS

*Time : 3 Hours]*

*[Maximum Marks : 75*

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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.

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

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**P.T.O.**

### Unit I

1. (a) Give the brief history of space travel in Germany and history of man in space. **8**
- (b) Explain the profile of flight from earth to a destination in space and batch. **7**
2. (a) Explain the failure of space shuttle in the Kalpana Chawala Columbia space shuttle. **10**
- (b) What do you mean by the term particle dynamics ? Illustrate your answer. **5**

### Unit II

3. (a) Illustrate the two body problem. **6**
- (b) Explain the Kepler's law. **9**
4. (a) Explain decay life time in the Earth satellite operations. **7**
- (b) Explain the effect of low thrust orbit transfer in earth satellite operations. **8**

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### Unit III

5. (a) Explain the kinetic energy of a rigid body. **6**
- (b) Explain the orientation angles and derive the particle axis theorem. **9**
6. (a) Explain Yo-Yo Mechanism in the satellite attitude dynamics. **7**
- (b) Explain Gravity Gradient satellite and dual spin space craft. **8**

### Unit IV

7. (a) Explain the concept of skip reentry in the reentry dynamics. **7**
- (b) Explain the concept of double dip reentry and lifting reentry. **8**
8. (a) Explain Meteors, Meteorites and their impacts. What are the advantages and disadvantages of meteors and meteorites. **9**
- (b) What do you mean by atmosphere ? Name all the possible atmosphere with their behaviour. **6**

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