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BAS-024

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B.Tech. (AEROSPACE ENGINEERING) (BTAE)

Term-End Examination

June, 2014

BAS-024 : INTRODUCTION TO ROCKET AND MISSILES

Time : 3 hours *Maximum Marks : 70*

Note : *Answer **any seven** questions. Use of scientific calculator is **permitted**. Assume data suitably.*

1. (a) Explain the different types of control surfaces in missiles. 4
   (b) How does a missile differ from a rocket ? 3
   (c) What are the characteristics of bodies of revolution ? 3

2. Derive the expression for altitude at the end of powered flight for a rocket with vertical flight infractional air. Also show the maximum distance covered by the rocket in the vertical direction. 10

3. What do you mean by thermal protection system ? Which types of thermal protection system are used in rockets and missiles ? Describe a thermal protection system based on heat dissipation. 10

4. What is staging ? Explain its utility by taking a numerical example. 10

5. Explain in detail the purpose and utility of rockets. **10**

6. Explain homing command guidance and beam rider guidance. **10**

7. Discuss the future trends in rockets. **10**

8. Differentiate between the following :
   (a) Equilibrium and Stability **3**
   (b) Exhaust Velocity and Characteristic Velocity **3**
   (c) Double base propellant and Composite propellant **4**

9. (a) Classify missile according to the purpose and explain any one in detail. **5**
   (b) Explain Boost Sustained Trajectory. **5**