

**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 in frictional 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

