

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

00253

Term-End Examination

June, 2018

**BAS-024 : INTRODUCTION TO ROCKETS AND
MISSILES**

Time : 3 hours

Maximum Marks : 70

***Note :** Answer any **seven** questions. All questions carry equal marks. Use of scientific calculator is permitted. Standard symbols and notations have usual meaning.*

1. Derive the expression for altitude at the end of powered flight for a rocket with vertical flight in fractional air. Also show the maximum distance covered by the rocket in the vertical direction. 10
2. What is staging ? Explain its utility by taking a suitable example. 10
3. Explain homing command guidance and beam rider guidance. 10
4. What is a rocket ? Classify it on the basis of the sources of energy. Explain each classification in brief. 10

5. What is the area ratio for a rocket nozzle ?
Derive the expression for area ratio of a rocket
nozzle. 10
6. Differentiate between Rocket and Missile.
Compare their characteristics with examples. 10
7. Explain operation of a liquid propellant rocket
with the help of a block diagram. 10
8. (a) How do various high lift devices effect
maximum lift co-efficient ? Compare their
effect quantitatively.
- (b) Explain in brief the V-n diagram with the
help of a neat sketch. 5+5
9. (a) Describe the criteria for selecting materials
for fabricating rockets and missiles.
- (b) List out the different materials used to
fabricate the parts of a rocket, identifying
the materials used for each part. Do you use
composite materials for rockets ? If yes, what
are the parts ? 5+5
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