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BAS-024

B.Tech. (AEROSPACE ENGINEERING) (BTAE)

00006

Term-End Examination

June, 2013

BAS-024 : INTRODUCTION TO ROCKET AND MISSILES

Time : 3 hours *Maximum Marks : 70*

*Note : Each question carries **equal** marks. Answer **any seven** questions. Use of calculator is **permitted**. Assume data suitably.*

1. Explain the purpose and utility of rockets. Explain different sub-systems of rockets. 10

2. Explain operation of a liquid propellant rocket with the help of a block diagram. 10

3. Derive expression for exit plane velocity for the flow through a rocket nozzle. 10

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

5. Find specific impulse, 'if a rocket generates 18 kN thrust for 4 seconds with a propellant mass of 36 kg. 10

6. Classify missiles on the basis of launch modes. Describe briefly each classification. **10**

7. How missile aerodynamics is different from that of aircrafts? Discuss each parameter. **10**

8. Explain homing command guidance and beam rider guidance. Discuss their advantages and disadvantages. **10**

9. What are future trends in rockets ? Explain in detail. **10**

10. Differentiate between ***any two*** of the following : **5x2=10**

    (a) Equillibrium and Stability.

    (b) Exhaust Velocity and Characteristic Velocity.

    (c) Double Base Propellant and Composite Propellant.
