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BAS-024

00413

B.Tech. (AEROSPACE ENGINEERING) (BTAE)

Term-End Examination

December, 2012

BAS-024 : INTRODUCTION TO ROCKET AND MISSILES

Time : 3 hours *Maximum Marks : 70*

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

1. What is a rocket ? Classify it on the basis of the source of energy. Explain each classification in brief. **10**

2. What are igniters ? What are it's functions and uses ? **10**

3. What is area ratio for a rocket nozzle ? Derive expression for area ratio of a rocket nozzle. **10**

4. How is Steady State Pressure derived for a solid Propellant rocket motor ? Derive the expression. **10**

5. Calculate velocity gain in a stage of rocket, if exhaust velocity is 2350 m/s and mass ratio is 5. **10**

6. Find the diameter of a solid sustainer to give a mass flow rate of 5 kg/s for a propellant of density 1760 kg/m^3 , burning at 10 mm/sec. **10**

7. Classify missiles on the basis of Guidance system. Describe the advantages and disadvantages of each. **10**

8. Differentiate between Rocket and Missile. Compare their characteristics with examples. **10**

9. Explain various materials used for missiles giving their characteristics with respect to their functions. **10**

10. Write a short note on ***any two*** of the following : **5x2=10**

    (a) Agni Missile

    (b) Specific Impulse

    (c) Static stability