Code.No: 37169 | R05 | SET-1

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
IV.B.TECH - I SEMESTER REGULAR EXAMINATIONS NOV/DEC, 2009
PROPELLANT TECHNOLOGY
(AERONAUTICAL ENGINEERING)

Time: 3hours **Max.Marks:80**

Answer any FIVE questions
All questions carry equal marks

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1. (a) Describe the major differences between motor gasoline and aviation gasoline.
(b) Describe the requirements of aviation fuels. [8+8]

2. Compare and contrast single base and double base propellants. Explain in detail. [16]

3. Explain the composition and combustion products of hydroxyl terminated polybutadiene and a double base propellant of NC-NG type. [16]

4. Distinguish between monopropellants and bipropellants in terms of the composition and burning process and end products. Also compare the energies released on combustion. [16]

5. Write short notes on (a) tolerance (b) outage (c) measurement of volume (d) measurement of mass in the context of liquid propellants. [4+4+4+4]

6. Describe the properties of liquid hydrogen, liquid oxygen, liquid nitrogen and liquid helium. [16]

7. What are cryogenic temperatures? Describe the different processes of achieving them? What is their significance in rocketry? [16]

8. How do you (a) estimate the size of particles of chemicals used in the preparation of solid propellants (b) estimate the burn rates of propellants using strand burner (c) estimate the performance of a propellant (d) carry out thermo gravimetric analysis? [4+4+4+4]

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