Code.No: 37169 | R05 | SET-3

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) Compare and contrast fuels of kerosene type and high flash point type fuels. Which are the more useful in aviation industry and why:
(b) What are the properties required of good fuels for aviation? [8+8]

2. Which do you prefer for a large booster of a rocket – Double base propellant or a composite propellant? Why? Explain in detail. [16]

3. What are the different components of a composite propellant and a double base propellant? What are the differences in the combustion products? Explain in detail, with examples. [16]

4. Define ignition and combustion. Define propellant and liquid propellant and describe the qualities of a good propellant. [16]

5. Write short notes on (a) tolerance on propellant loading (b) effect of density of propellant (c) measurement of volume (d) Instrumentation and methods required for measurement of fuel loaded into tanks. [4+4+4+4]

6. What are cryogenic and semi-cryogenic propellants? Describe the relative advantages and disadvantages. [16]

7. Describe (a) Joule – Thompson effect (b) ideal cycle for achieving cryo temperature (c) Cascade process of achieving cryo temperature (d) storing of cryo propellants. [4+4+4+4]

8. Write short notes on (a) Strand burner test (b) Thermo-gravimetric analysis (c) Performance estimation of propellants (d) Ignitability [4+4+4+4]

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