DESIGN BASICS OF SOLID PROPELLANT ROCKETS

1. List some important properties of solid propellant.
2. Name some typical ablative materials used in solid propellant rocket nozzles.
3. Why are solid propellant rockets preferred as booster stage?
4. What is the type of igniter used in large solid boosters like space shuttle? Why?
5. What is the function of nozzle closure in a solid rocket?
6. Name two critical parameters specially taken care when a pair of solid rocket boosters is used as strap-on stages.
7. What is the commonly used motor case material for solid propellant rocket booster? Why?
8. What is the purpose of 'M' type Thrust-Time graph in a booster stage solid propellant rocket?
9. List some typical nozzle throat materials for use in solid motors. What are the selection criteria?
10. What are the applications of pyrotechnic igniter? Why?
11. What is the purpose of movable nozzle?
12. What is the typical motor case material for upper stage solid rocket motor? Why?
13. How will you configure or design the solid propellant grain in order to have 'M' type Thrust-Time graph?
14. What is the design criterion for avoiding erosive burning of solid propellant? Why?
15. What are the special process steps taken to ensure identical performance of a pair of solid propellant strap-on boosters in a heavy launch vehicle? Why these steps are required?
16. What is the impact of erosion in nozzle throat of a solid propellant motor?
17. Name two methods to ensure a designed burn rate in a solid propellant grain.
18. Give a typical composition of a solid propellant.
19. List four types of nozzles used in missiles and launch vehicles.
20. Name two methods of thrust vector control in solid propellant missiles.