Aerospace: The Journey of Flight
Sample Tests, Chapters 21 – 23 (Rockets)
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Chapter 21

1. What country first used rockets as a weapon of war?
   a China
   b England
   c Japan
   d Russia

2. Who added flight-stabilizing guide sticks to rockets and built the first viable launching pad?
   a Christopher Geissler
   b Konrad Kyeser
   c William Congreve
   d William Hale

3. Who was the first scientist to use liquid propellants and is known as the father of modern rocketry?
   a William Congreve
   b William Hale
   c Robert Goddard
   d Hermann Oberth

4. Who gave us the Law of Universal Gravitation that defines the relationship of force, weight and mass?
   a Galileo
   b Goddard
   c Hale
   d Newton

5. To every action, there is an equal and opposite reaction, is Newton's
   a First Law of Motion.
   b Second Law of Motion.
   c Third Law of Motion.
   d Fourth Law of Motion.

6. Which rocket system contains the other systems and provides the streamlined shape?
   a airframe system
   b propulsion system
   c guidance system
   d control system

7. T/F Specific impulse is the number of pounds of thrust delivered by consuming one pound of propellant in one second.

8. T/F The guidance system is the brain of a large sophisticated rocket.

9. T/F In Newton's Second Law of Motion, the M in his equation stands for motion.

10. T/F Konstantin Tsiolkovsky made the first computations for rocket flights into space.

Chapter 22

1. What is nothing more than very rapid oxidation?
   a cryogenics
   b hypergolics
   c combustion
   d thrust

2. The substance to be oxidized is known as the
   a combuster.
   b oxidizer.
   c propellant.
   d reducer.

3. If the oxidizer is stored in one container and the reducer in another, the term _____ is used.
   a bipropellant
   b monopropellant
   c propellant
   d cryogenic propellant

4. Which of the following is not a characteristic of a good propellant?
   a It must contain an oxidizer and fuel.
   b It must produce energy in the form of force.
   c It must ignite correctly at least every other time.
   d The force it produces must be controllable.

5. Increase the temperature of a medium and its molecular activity and pressure will
   a increase.
   b decrease at first, then increase.
   c decrease dramatically.
   d not change.

6. The grain design that produces the most thrust shortly after ignition, and then diminishes thereafter is called
   a progressive design.
   b neutral design.
   c regressive design.
   d none of the above.

7. There are two general classifications of liquid propellants:
   a hot and cold
   b gas and solid
   c oxidizer and reducer
   d bipropellant and monopropellant

8. T/F The combustion chamber is the heart of the liquid-propellant engine.

9. T/F The polyurethane fuel base of the most common solid-fuel mixture is a type of synthetic rubber.

10. T/F Hybrid propellant systems use only liquid propellants within the same engine.

Chapter 23

1. An orbit that maintains a virtually constant altitude above the Earth's surface is a/an
   a apogee orbit.
   b circular orbit.
   c elliptical orbit.
   d escape orbit.

2. The point where the orbiting body is closest to the body being orbited is called
   a apogee.
   b burnout
   c ellipticity
   d perigee.

3. At the moment a rocket engine ceases to produce thrust, it is at
   a apogee.
   b burnout.
   c ellipticity.
   d perigee.

4. All ballistic trajectories behave as if they were going into an _____ orbit around Earth's center of gravity.
   a apogeal
   b elliptical
   c equatorial
   d escape

5. T/F Sounding is associated with measuring or sampling the depths of a body of water.

6. T/F Velocity requirement means the velocity required in order to travel a certain path.

7. T/F The adding together of all the velocity requirements for all stages of the mission is called maximum velocity requirements.

8. T/F The Hohmann transfer pertains to boosting a satellite into a chosen orbit.

9. T/F A form of polar orbit that keeps a satellite exposed to constant sunlight is called a sunsynchronous orbit.

10. T/F There are two basic categories of launch vehicles – expendable and reusable.