1. What is the primary objective of seismic control systems in structures?
a) To prevent earthquakes from occurring
b) To minimize the effects of earthquakes on structures
c) To increase the intensity of earthquakes
d) To enhance the aesthetic appeal of structures

Answer: b) To minimize the effects of earthquakes on structures
Explanation: Seismic control systems aim to reduce the damage caused by earthquakes on structures by mitigating the forces transmitted to the building during seismic events.

2. Which of the following is NOT a type of seismic control system?
a) Active
b) Reactive
c) Passive
d) Semi-active

Answer: b) Reactive
Explanation: Reactive systems are not a recognized type of seismic control system. The primary types are active, passive, and semi-active.

3. What characterizes passive seismic control systems?
a) They require external power to function
b) They adjust stiffness and damping properties in real-time
c) They do not require external power to function
d) They are always more expensive than active systems

Answer: c) They do not require external power to function

Explanation: Passive seismic control systems operate without the need for external power sources and typically consist of devices like dampers or base isolators.

4. Which seismic control system allows for real-time adjustment of stiffness and damping properties?
a) Active
b) Passive
c) Semi-active
d) Hybrid

Answer: a) Active
Explanation: Active seismic control systems use sensors and actuators to adjust stiffness and damping properties in real-time, actively responding to seismic forces.

5. What is a key advantage of semi-active seismic control systems over passive systems?
a) Higher initial cost
b) Lower maintenance requirements
c) Greater adaptability to varying seismic conditions
d) Inability to retrofit existing structures

Answer: c) Greater adaptability to varying seismic conditions
Explanation: Semi-active systems offer the advantage of adaptability, allowing for adjustments in damping properties according to changing seismic conditions.

6. What is the purpose of base isolation systems in seismic control?
a) To increase the weight of the structure
b) To decrease the flexibility of the structure

c) To disconnect the structure from the ground motion
d) To amplify seismic waves

Answer: c) To disconnect the structure from the ground motion
Explanation: Base isolation systems are designed to decouple the structure from the ground motion during earthquakes, reducing the transmission of seismic forces to the building.

7. Which type of seismic control system is most suitable for retrofitting existing structures?
a) Active
b) Passive
c) Semi-active
d) Hybrid

Answer: b) Passive
Explanation: Passive seismic control systems are often preferred for retrofitting existing structures due to their simplicity and lower maintenance requirements compared to active or semi-active systems.

8. What is the primary function of damping devices in seismic control systems?
a) To increase seismic forces on the structure
b) To decrease seismic forces on the structure
c) To strengthen the foundation of the structure
d) To control the temperature inside the structure

Answer: b) To decrease seismic forces on the structure
Explanation: Damping devices in seismic control systems are intended to dissipate energy and reduce the amplitude of vibrations induced by seismic events, thereby decreasing the

seismic forces on the structure.

9. What is a requirement for an efficient earthquake-resistant structural system?
a) High susceptibility to seismic forces
b) Low stiffness and flexibility
c) Adequate strength and ductility
d) Minimal maintenance needs

Answer: c) Adequate strength and ductility
Explanation: An efficient earthquake-resistant structural system requires sufficient strength to withstand seismic forces and ductility to deform without collapsing, thereby dissipating seismic energy.

10. What is the primary objective of retrofitting structures for seismic control?
a) To increase the visual appeal of the structure
b) To decrease the initial construction cost
c) To enhance the structural integrity and safety during earthquakes
d) To reduce the overall weight of the structure

Answer: c) To enhance the structural integrity and safety during earthquakes
Explanation: Retrofitting structures for seismic control aims to improve their ability to withstand earthquakes, enhancing structural integrity and safety during seismic events.