1. Which design principle focuses on the disuniting of structures?
a) Modularity
b) Disintegration
c) Disuniting
d) Fragmentation

Answer: c) Disuniting

Explanation: Disuniting of structures refers to designing components in a way that they can be easily separated or disassembled. This principle enhances flexibility and ease of maintenance in structures.

2. What is the primary consideration for designing cross-sections based on material efficiency?
a) Maximizing weight
b) Minimizing strength
c) Minimizing material usage
d) Maximizing complexity

Answer: c) Minimizing material usage

Explanation: Designing cross-sections based on material efficiency involves minimizing the amount of material used while still maintaining structural integrity and strength.

3. Problems in design due to joint flexibility are primarily addressed by:
a) Increasing joint rigidity
b) Reducing material strength
c) Ignoring joint flexibility

d) Allowing for joint deformation

Answer: d) Allowing for joint deformation

Explanation: Joint flexibility can cause issues in structural design, which can be addressed by allowing for joint deformation, ensuring that the structure can accommodate movement without failure.

4. Which design principle advocates for accommodating joint deformation?
a) Structural rigidity
b) Joint immobility
c) Material uniformity
d) Joint flexibility

Answer: d) Joint flexibility

Explanation: Joint flexibility is a design principle that suggests allowing for deformation at joints to mitigate issues related to stress concentration and structural failure.

5. What is the primary focus of designing cross-sections based on material efficiency?
a) Maximizing weight
b) Minimizing strength
c) Minimizing material usage
d) Maximizing complexity

Answer: c) Minimizing material usage

Explanation: Designing cross-sections based on material efficiency aims to minimize the

amount of material used while maintaining adequate strength and performance.

6. Which design approach emphasizes the ease of disassembling structures?
a) Modular design
b) Integrated design
c) Fragmented design
d) Unified design

Answer: a) Modular design

Explanation: Modular design focuses on creating components that can be easily assembled and disassembled, promoting flexibility and ease of maintenance in structures.

7. What is the primary challenge posed by joint flexibility in structural design?
a) Increased structural integrity
b) Reduced material usage
c) Stress concentration
d) Decreased joint mobility

Answer: c) Stress concentration

Explanation: Joint flexibility can lead to stress concentration at connection points, potentially causing structural failure if not properly addressed in the design phase.

8. Which principle advocates for designing components to be easily separated or disassembled?
a) Integration
b) Disintegration

c) Disassembly
d) Disuniting

Answer: d) Disuniting

Explanation: Disuniting involves designing components in a way that they can be easily separated or disassembled, promoting flexibility and ease of maintenance in structures.

9. What does the design principle of joint deformation allowance aim to prevent?
a) Material efficiency
b) Structural rigidity
c) Stress concentration
d) Component disintegration

Answer: c) Stress concentration

Explanation: Allowing for joint deformation aims to prevent stress concentration at connection points, which can lead to structural failure if not properly managed.

10. Which design principle focuses on optimizing the use of materials while maintaining structural integrity?
a) Disuniting
b) Material flexibility
c) Material efficiency
d) Structural rigidity

Answer: c) Material efficiency

Explanation: Material efficiency involves optimizing the use of materials in structural design to minimize waste while ensuring that the structure maintains adequate strength and performance.