



1. Increasing the structural stiffness:
 - a. Decreases the period
 - b. Increases the period
 - c. Does not affect the period

2. True or False: Systems that allow for higher inelastic deformation can be designed for lower design loads.
 - a. True
 - b. False

3. The use of a reduced response spectrum:
 - a. Leads to uneconomical design
 - b. Eliminates the possibility of structural damage
 - c. Accounts for the effects of period elongation and energy absorption

4. True or False: Continuity plates are used to reinforce the column for panel zone shear.
 - a. True
 - b. False

5. The strong-column / weak-beam ratio should be greater than 1.0 so that:
 - a. A story mechanism becomes unlikely
 - b. Column flexural yielding is prevented
 - c. Panel-zone yielding is prevented
 - d. Both A and B
 - e. A, B, and C
 - f. None of the above

6. In moment frame connections the plastic hinge location can be shifted away from the face of the column by:
 - a. Reinforcing the beam at the face of the column
 - b. Adding continuity plates
 - c. Weakening the beam at the desired hinge location
 - d. A and C
 - e. None of the above



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7. True or False: SCBF and BRBF are similar in that both braces behave symmetrically with respect to tension and compression.
 - a. True
 - b. False

8. For SCBF, which of the following are protected zones?
 - a. Gussets
 - b. Brace mid-span
 - c. Brace ends
 - d. All of the above
 - e. A and B only

9. SCBF end connections may accommodate brace buckling by:
 - a. Holding the brace end back such that a fold line can form in the gusset
 - b. Providing clearance along an elliptical zone so that the gusset can deform as the brace buckles
 - c. Providing a knife plate perpendicular to the gusset such that the plate provides rotation capacity in the plane of the frame
 - d. Providing flexural restraint with strength greater than the expected flexural strength of the brace
 - e. All of the above

10. Which is the appropriate additional bearing length for a member spanning between seismically separate portions of a structure?
 - a. Twice the larger design story drift
 - b. The sum of the design story drifts
 - c. The difference between the design story drifts
 - d. The square root of the sum of the squares (SRSS) of the design story drifts
 - e. The sum of 150% of the design story drifts amplified by C_d/R .

11. Which requirements are directly functions of Risk Category?
 - a. Design base shear
 - b. Drift limit
 - c. Overstrength factor
 - d. Redundancy factor
 - e. Seismic Design Category
 - f. All of the above
 - g. None of the above
 - h. a, b, and e



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12. True or False: ASCE 7 gives load and analysis requirements, AISC 360 gives element strengths, and AISC 341 gives proportioning and detailing requirements.
- True
 - False
13. Which is most correct?
- If seismic base shear governs wind loading may be ignored.
 - If seismic base shear governs wind loading may be checked after frame design and may govern for light cladding and similar elements.
14. Which of the following contain quality requirements applicable to steel structures in Seismic Design Category D?
- AISC 360 Chapter N
 - AISC 341 Chapter J
 - AISC 358 §5.7
 - AWS D1.1 §6
 - AWS D1.8 §7
 - All of the above
 - None of the above
15. True or false: A building with the center of mass aligned with the center of rigidity cannot have a torsional irregularity.
- True
 - False
16. True or False: In diaphragm design in Seismic Design Category C and higher, collector forces are amplified based on the system overstrength.
- True
 - False
17. In the design example, why is the design base shear for the SMF less than that for the BRBF?
- The building is rectangular.
 - The systems have different R factors.
 - The systems have different periods.
 - Accidental eccentricity
 - All of the above
 - None of the above



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18. True or false: The base overturning moment determined using modal response spectrum analysis is lower than that determined using the equivalent-lateral-force procedure.
- True
 - False
19. True or False: In SMF connection design the column shear may always be taken as opposite to the panel-zone shear and may thus be used to reduce the required shear strength.
- True
 - False
20. In the design example the initial column and beam size at the connection analyzed are revised. Which of the following statements are true about this optimization?
- The optimization results in lower tonnage.
 - The optimization results in eliminating the need for continuity plates and doublers.
 - The optimization method allows the engineer to select members such that the frame stiffness remains approximately the same.
 - All of the above
 - None of the above
 - b and c only
21. Which statements about the factor B_2 are correct?
- The factor B_2 may be used to approximate the parameter θ in ASCE 7 Section 12.8.7.
 - The factor B_2 may be used to approximate both second-order forces and second-order displacements.
 - The factor B_2 may always be taken as 1.0 for braced frames.
 - The factor B_2 may determine whether K factors have to be computed for SMF columns.
 - All of the above
 - None of the above
 - a, b, and d
22. In the design example, anchor rods are placed concentrically about the column. Why?
- The configuration allows the connection to be analyzed as a pin.
 - The configuration eliminates eccentricity in the anchor rod group.
 - The configuration minimizes the required flexural strength of the base plate.
 - All of the above
 - None of the above
 - b and c only



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23. True or False: In the chevron connection, the beam must resist some shear resulting from the vertical component of the brace force.
- a. True
 - b. False
24. True or False: BRBF tend to be governed by strength requirements, so it is more efficient to begin the design by selecting members to meet the required strength and then proceeding to verify that the drift meets the limit.
- a. True
 - b. False

