1. Which of the following is not one of the assumptions used in the development of the effective length alignment charts in the AISC 360 Commentary?
   a. No significant axial forces in girders
   b. Behavior is inelastic
   c. All joints are rigid
   d. All members have constant cross-sections
   e. None of the above

2. The effective length factor, $K$, for a column in a moment frame will
   a. increase as the beams framing into its ends increase in stiffness.
   b. not change as the beams framing into its ends change stiffness.
   c. increase with increases in column stiffness.
   d. decrease with increasing column stiffness.
   e. None of the above

3. The effective length factor, $K$, for a column in a moment frame will
   a. not be influenced by column inelasticity.
   b. increase as column response becomes more inelastic.
   c. decrease as beams behave more inelastically.
   d. decrease as columns behave more inelastically.
   e. None of the above

4. A particular column in a moment frame has an effective length factor, $K = 2.3$ based on the alignment charts. If the frame has 2/3 of its load on gravity only columns and 1/3 of its load on moment frame columns, the approximate $K$-factor will be
   a. 4.0
   b. 3.2
   c. 2.3
   d. 6.9
   e. None of the above

5. A moment frame is to be designed so that its drift due to a service wind load of 80 kips will be limited to L/500. For this design,
   a. the member amplification will be 1.3.
   b. sway amplification will be 6.25.
   c. the structure will sway too much to be accepted.
   d. it will be impossible to provide sufficient column stiffness to meet the criteria.
   e. None of the above
6. Use of the direct analysis method avoids the need to calculate effective length factors, thus $K = 1.0$. This is due to
   a. the use of notional loads for inclusion of out-of-plumbness.
   b. the use of a reduction factor for column inelasticity.
   c. an increase in second-order effects due to use of a reduced stiffness in the analysis.
   d. treating the frame as a braced frame.
   e. None of the above

7. AISC 360-16 requires the initial out-of-plumbness be considered in design. Which of the following is true?
   a. Steel frames are now being built more out-of-plumb than in the past.
   b. Initial out-of-plumbness may have a significant impact on second-order effects for some frames.
   c. For frames with $B_2 \leq 1.5$ initial out-of-plumbness in combination with wind load can be critical.
   d. All of the above
   e. None of the above

8. The structure given in Example 2 of the presentation is to be rechecked with $P_D = 90$ kips, $P_L = 270$ kips, $W = 10$ kips. For the load combination given, determine the sway amplification factor, $B_2$, using either LRFD or ASD.
   \[
   \begin{array}{ll}
   \text{LRFD} & \text{ASD} \\
   \text{a.} & 0.90 \quad 1.26 \\
   \text{b.} & 1.00 \quad 1.40 \\
   \text{c.} & 1.25 \quad 1.63 \\
   \text{d.} & 1.33 \quad 1.90 \\
   \text{e.} & 2.20 \quad 3.15
   \end{array}
   \]

9. Using the structure in Example 3 as a starting point, Column A will be changed to a W14x132. Which of the following is true?
   a. The sway amplification factor, $B_2$, will increase.
   b. The sway amplification factor, $B_2$, will decrease.
   c. The sway amplification factor, $B_2$, will not change.
   d. The member amplification, $B_1$, will increase.
   e. It cannot be determined with the information given.
10. If the structure of Example 3 were to be checked by the effective length method rather than the direct analysis method used in the example, which of the following would be true?
   a. A different first-order drift would be calculated.
   b. The sway amplification factor, $B_2$, would be different.
   c. The effective length factor for Column A would be greater than 2.0.
   d. All of the above
   e. Both a and b